

THE DUKE OF WELLINGTON AND THE SUPPLY SYSTEM
DURING THE PENINSULA WAR

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

THE DUKE OF WELLINGTON AND THE SUPPLY SYSTEM DURING THE PENINSULA WAR, by Major Troy T. Kirby, 84 pages.

Napoleon's invasion of the Iberian Peninsula brought Spain, Portugal, and Britain into a close, if sometimes uneasy alliance. When an expeditionary force led by General Sir Arthur Wellesley, later the 1st Duke of Wellington, disembarked in Portugal in August 1808, the British Army had been at war with France for five years. If the experience gained during campaigns on five continents had sharpened the efficiency of the Commissary Department, whose staff supplied and transported its rations, Wellington might not have complained after only one week in Portugal: "I have had the greatest difficulty in organizing my commissariat for the march. The logistic challenges faced by the Duke of Wellington during the Peninsula War were daunting. The role logistics played in deciding the outcome of the war in the Peninsula as well as detailing the needs of the troops is important in understanding how the war was conducted. The procurement, transport, distribution, and payment of supplies for the use of the Anglo-Portuguese Army during the Peninsula War played a direct role in determining its final outcome.

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CHAPTER 1

INTRODUCTION

In 1806, France's inability to defeat the British on the sea coupled by the Royal Navy's dominance of the English Channel, Napoleon decided to embargo all traffic between Europe and Great Britain. Napoleon had hoped to "conquer the sea by the power of the land."¹ The Berlin Decrees of 1806 were the first in a series of sanctions against Britain's trade known collectively as the Continental System. The political plan behind the Continental System was to bring Britain to its knees through economic strangulation. Funding for Britain's war effort ultimately depended upon her overseas trade. The sanctions placed the United States and other unaligned European states in an unenviable position; they had to take sides in the contest between their more powerful neighbors. While the British and United States squabbled over the trade embargo, France turned her attention to Portugal, which was an important entry point. Napoleon believed the European mainland would, because of the abundance of resources and population, prevail in any economic competition with a smaller state that relied on its commercial and maritime strengths to fund its wars. Napoleon truly believed that if he could control Britain's trade with the European continent he would force Britain to meet his demands and capitulate. Napoleon stated, "The nation of shopkeepers' would fall victim to bankruptcy, mass unemployment, and possibly even revolution."² Paramount to this plan was sealing off the entire coastline of Europe, which included Portugal. By 1810-1811,

¹Christopher D. Hall, *Wellington's Navy* (London: Chatham Publishing, 2004), 23.

²Ibid., 23.

the French had 300,000 troops within the Peninsula, and yet only 70,000 confronted Wellington; the remainder were pinned down elsewhere by the threat of local insurrections and the actions of guerrillas. With the French unable to concentrate their forces against the British-Portuguese Army, Wellington was able to move on to the offensive in 1812.³

What the French did not have was a competing navy. Britain's Navy, coupled with Spain's ensured the French would not have unlimited access to the numerous ports and river routes throughout the region. This point is where the balance of power within the region shifted to Britain. The importance of the British Navy with their ability to transport, provide supplies, troops, equipment, and move troops and equipment unimpeded along the coast of Portugal to area of operations, were critical to the success of Wellington's logistical system. The Royal Navy could embark and disembark troops and supplies at will along the Portuguese coast and its ports. They would provide covering fires and indirect fire support when needed, without interdiction from the French Navy. The Royal Navy's role in logistical support cannot be understated. We will examine their contribution and significance in chapter 4.

³Hall, 34.



Figure 1. Portugal Country Map

Source: Wordtravels.com, "Travelguide," <http://www.wordtravels.com/Travelguide/Countries/Portugal/Map> (accessed 7 April 2011).

Napoleon's invasion of the Iberian Peninsula brought Spain, Portugal, and Britain into a close, if sometimes uneasy alliance. When an expeditionary force led by General Sir Arthur Wellesley, later the 1st Duke of Wellington, disembarked in Portugal in August 1808, the British Army had been at war with France for five years. If the experience gained during campaigns on five continents had sharpened the efficiency of the Commissary Department, whose staff supplied and transported its rations, Wellington might not have complained after only one week in Portugal: "I have had the greatest

difficulty in organizing my commissariat for the march. This department needs your serious attention.”⁴

The logistic challenges faced by Wellington during the Peninsula War were daunting. The role logistics played in deciding the outcome of the war in the Peninsula as well as detailing the needs of the troops is important in understanding how the war was conducted. The procurement, transport, distribution, and payment of supplies for the use of the Anglo-Portuguese Army during the Peninsula War played a direct role in determining the final outcome. A sideshow to the main conflict in Europe, the war persisted for six years. Considered a secondary theatre of war, however, the Peninsula was important in forcing the French to commit ever increasing front-line troops in an effort to pacify this rebellious region. The troops sent to the Peninsula would become sorely missed once Napoleon launched his invasion of Russia in 1812. The inability of the French to capitalize on their vast numerical superiority led to a protracted war of attrition where increasing numbers fell to the British, Portuguese, and Spanish armies, or to starvation.

Chapter 1 presents a broad overview of the peninsular region topography during the British operations of 1809 to 1812, the overall political climate that brought Great Britain into the region, and Wellington’s logistical success overall, his support plan for the Peninsula War.

Much of the success of the Anglo-Portuguese Army was due to the effectiveness of Wellington's supply system. The ability of Wellington to keep his army supplied presented him with an enormous advantage over the French. Wellington's ability to defeat

⁴Wellington to Lord Castlereagh, *Wellington’s Dispatches*, 8 August 1808, 4:59.

French forces despite a substantial numerical disadvantage presents the thesis that the efficiency of Wellington's logistical system influenced the strategic situation to a significant degree. While superior logistics alone cannot win a war, their absence can lead to defeat, as the French learned to their detriment.

In *The British Commissary*, Havilland Le Mesurier wrote, “Hay, straw and fuel, wagons or means of transport are always to be found in a country if it is inhabited: but requires judgment and dispatch to procure them and honorable treatment to prevent desertion.”⁵ That may have been true in northern Europe, but not in the Peninsula, where some regions of Estremadura were near deserts. Food and drink were bought locally wherever possible, but most essentials were distributed from magazines at Lisbon, Oporto, and other satellite ports, where stores from as far away as Turkey and America were delivered and stock-piled. Adequate supplies were usually available at the depots, but the difficulty of transporting them hundreds of kilometers to the front over unpaved roads that rarely went in the desired direction was a major cause of the Commissariat’s difficulties.

The Peninsula constitutes a rough square, three and half sides bounded by water, altogether comprising a coastline in excess of 1,500 miles. The coastline offered another significant impact to the overall logistical success that Wellington employed. Most of the principle Iberian centers of population were on the coast. Of the other five larger Spanish towns with 50,000 or more inhabitants, only Seville was inland, all the others, Barcelona, Valencia, Cadiz, and Malaga, were ports.

⁵Havilland Le Mesurier ESQ, *The British Commissary* (London: Fort Egerton, the Military Library, 1801), 52.

Similarly, in Portugal the two most populous places, Lisbon and Oporto, were on the coast. There are four main rivers; the Ebro, Guadalquivir, Douro, and Tagus. All four provided a transportation network to move supplies and troops. Unless armies could use the sea for at least part of their movement they were condemned to the roads for all transportation, as of course were all the combatants in the central regions.⁶ Where transport by river barge was practical, as on stretches of the Tagus River almost to the satellite depot at Abrantes, it helped tremendously, but rivers have a habit of not going in the desired direction, as depicted by William Reid:⁷

The rivers of Spain and Portugal are not highways, or lines of communication but barriers torrents sunk in gorges cut deep below the level of the face of the land. The chief roads, with few exceptions, avoid, instead of courting, the neighbourhood of the great streams. As a matter of fact, Spain and Portugal turn their backs upon each other; the smaller realm looks upon the sea; her strength and wealth lie on the Atlantic coast; the inland that touches Spain is rugged and unpeopled, in many parts a mere waste of rock and heath.⁸

This afforded Wellington the opportunity to defend with his back to the seas and resupply his army via the ports and supply depots along the coast. This was a choice the French did not have, thus weakening French overall combat power.

Some of the available roads in Spain were as good as any in Europe. They were designed to connect Madrid with the periphery towns such as, Corunna, Badajoz, Cadiz, Cartagena, Barcelona, and Irun were straight, 30 to 60 feet wide and often flanked by

⁶Hall, 5.

⁷William Reid, —Facing the Biscuit: The British Commissariat in the Peninsula War” (Paper delivered to the International Association of Museums of Arms and Military History, Museo Arqueologico, Madrid, 8 September 1993), 106.

⁸Charles Oman, *A History of the Peninsular War* (Oxford: Clarendon Press, 1902-1930), 3:153-166.

retaining walls. However, due to the government's inability to complete the networks, parts of the network remained unfinished prior to the war. Moreover, some of the major networks were falling into decay.⁹ When the major highways could not be used armies would have to rely on *caminos*, primitive roadways or trails. Decent roads during dry weather, when the rainy season came they would turn into muddy masses. A second alternate supply route, the *carrils* or ordinary trails with two narrow bands of stone paving to accommodate cart wheels, were useful on level terrain, but in rough areas they degenerated into paths suitable only for pack animals.¹⁰

Roads always took the "line of least resistance" in early days, and would seek for easy passes, not for short cuts. The idea that "time is money", and that instead of going around two sides of a triangle it may be worthwhile to cut a new path across its base, in spite of all the engineering difficulties, was one very unfamiliar in Spain. Nothing shows more clearly the state of mediaeval isolation in which the kingdom still lay in 1808 than the condition of the roads. Wherever the country presented any serious obstacles, little or no attempt had been made to grapple with them since the early years of the 1760s. What roads there were, when the War of 1808 broke out, were in a state of dreadful neglect. There were many other points at which a division travelling in light order without guns or baggage could cross the watershed, but for an army travelling with all its impedimenta such bypaths were impracticable.

Summing up the general characteristics of the road system of Spain, the main routes are at right angles to the great rivers rather than parallel to them. Just because the

⁹Hall, 5.

¹⁰Ibid.

roads do not cling to the valleys, but strike across them at right angles, they are always crossing watersheds by means of difficult passes.¹¹

In his *Diary of Campaigns in the Peninsula*, Lieutenant William Swabey, Royal Horse Artillery, notes on 20 May 1812, “Close to this town (*Torremexia*) runs a road, or rather the remains of one, made by the Romans and formerly reaching from Merida to Lisbon, these relics of which there are many in Spain are called *Calhada*.”

George Ticknor, American historian of Spanish literature, when first visiting the country before any form of “diligence service” had been set up, remarked:

There was no travelling in Spain. Between Barcelona and Madrid, in a journey of thirteen days, we met only a few muleteers, a few carts and one single coach like our own, only half a dozen in all; and yet the road was the main highway between the capital and one of the principal cities of the kingdom; but it had long been so. Major William Dalrymple, travelling in the Peninsula while on leave from the Gibraltar garrison in 1774, set out from Ponferrada for Galicia, had remarked on the road being “very bad” after having “travelled on a new road for about two miles, which is intended to be carried to the sea,” adding: “And here I must observe, that except at La Carolina in the Sierra Morena, and for a few leagues about Madrid, I never seen any made (ie surfaced) roads. There are no heavy carriages in the country I have passed, otherwise it would be impossible, particularly in winter, for them to travel. Left the Camino Real (the Royal Road) and came into an abominable road . . . began to ascend the mountain, the road like steps of stairs.”¹²

In Portugal, the situation was no better. The main supply routes, those accessed by wheeled traffic, were equally few in number and confined to the sides of mountains. The

¹¹Oman, *A History of the Peninsular War*, 1:78-85.

¹²Ian Robertson, *A Commanding Presence: Wellington in the Peninsula War 1808-1814* (Gloucestershire: Spellmount Limited, 2008), 62.

lesser Portuguese trails had all the restrictions and defects to be found in those areas across the border.¹³

In the *British Rules and Regulations for the Formations*, 1803 edition, page 368, it is stated: –The Column of Route. . . . All marches are therefore made in column of divisions of the line, and never on a less front than 6 files where the formation is 3 deep, or 4 files where it is 2 deep.”¹⁴ Another picture emerges from Wellington’s general orders 16 March 1811:

The Commander of the Forces requests that for route marches each company in every battalion of infantry may be told off in threes; when the column is to be formed for the march the companies must be wheeled up or backward by threes, and each stand in column of 3 men in front, which is as large a number as the greater proportion of the roads in Portugal will permit.¹⁵

Wellington changed the rules of march for Portugal due to their narrowness and construction. He wrote, in a dispatch dated 2 May 1809, that the rules of march were to be as follows: –The troops will march in two principal columns, the right composed of about 6,000 infantry and 1,000 cavalry, by the route of Vizeu to Lamego; the left of about 20,000 infantry and 1,400 cavalry, by the route of Vouga towards Oporto.”¹⁶ It must be therefore considered that with the majority of the roads in Portugal being of this width, an

¹³Stephen George Ward, *Wellington* (New York: ARCO Publishing Company, 1964), 65.

¹⁴Foot March Memorandum, *Wellington’s Dispatches*, 8 August 1808, 9:16.

¹⁵Arthur Wellesley Wellington, (Duke of), *Supplementary Dispatches, Correspondence, and Memoranda of Field Marshal Arthur, Duke of Wellington*, 14 vol, edited by the 2nd Duke of Wellington (London: John Murray, 1863).

¹⁶Wellington, *Supplemental Dispatches*, 4:273-74.

artillery team, two horses wide, and the men on the foot march could have significant challenges with movements.

The Peninsula is comprised of a vast exposed frontier. It was widely believed at the time that defending Portugal from the Pyrenees, not at Lisbon, was the best course of action. It was an open frontier, all equally rugged but all equally to be penetrated. Sir John Moore stated, “The frontier is not defensible against a superior force.”¹⁷ Its defense presents several acute challenges. The main challenge to Portugal’s defense was not the vast frontier, but the ability to meet a simultaneous threat at the three widely separated entrances; the Tagus River, which is not conducive for resupply, the land route through Almeida, which was a main supply route, and Elvas and Badajoz.

Wellington felt differently regarding the defense of Portugal. When Wellington deployed to India, he stocked his library with books on India. When he had been Lord Castlereagh’s (British Secretary of War) military choice, he had turned his reading to Mexico, Nicaragua, Venezuela, Chile, Denmark, and Sweden in response to the chimerical projects of the times.¹⁸ Upon going to the Peninsula, he did the same. Wellington read the defense of Portugal conducted by William, the Count of Lippe-Schaumburg in 1762. William conducted a brilliant defensive campaign of marches and counter-marches, although the enemy had three to one superior in numbers, was confronted by defenders in a good position and never dared to risk an all out attack. William’s previous campaign presented a detailed description on the defense of Portugal.

¹⁷Stephen George Ward, *Wellington’s Headquarters* (London: Oxford University Press, 1957), 65.

¹⁸*Ibid.*, 163.

Wellington was not disputing the point that Portugal was difficult to defend, but instead Wellington implemented a plan that included a force of 30,000 British, 30,000 Portuguese regulars and 40,000 militia, to defend Portugal against an attack of up to 250,000 French, even if Spain were overrun and all the entrances accessible to the enemy.¹⁹

To understand the significance of the topography we must consider how well the British Army knew the terrain and topography. At the outbreak of the Peninsula War, maps of both Spain and Portugal comparable in accuracy to those of other parts of Western Europe did not exist. This was due largely to the Jesuit influence in the governing body *como cosa del Diablo*. Mathematical studies had been deliberately restricted by the Jesuits and little progress had been made until their expulsion in the 1770s. This loss —~~a~~” influenced the credibility and accuracy of the maps that were available. Maps that were available were not of much use to a military commander. To counter this restraint, the Quartermaster General would send out a reconnoiter party to sketch the land in its entirety. Another way in which topographical information was drawn from was through human sources and a compilation of information, derived from many different sources, printed in a series of maps known collectively as —Lopez”.²⁰ These maps gave a tolerable representation of the ground and a moderately accurate notion of distances. The rugged terrain, the three widely separated routes, and lack of useful topographical information all presented Wellington the logistical challenges of moving, resupplying, and timing.

¹⁹Ward, 67.

²⁰Ibid., 104.

Naval support coupled with Wellington's understanding of the topography and his astute recognition of the land not being able to support the French, assisted the allied victory in the Peninsula. Wellington stated, "Bonaparte cannot carry on his operations in Spain, excepting by means of large armies; and I doubt much whether the country will afford subsistence for a large army, or if he will be able to supply his magazines from France, the roads being so bad and the communications so difficult."²¹ Wellington's opinion was, "the more ground the French hold down, the weaker they will be at any given point,"²² this was no secret to the French. Early in 1812 Marshall Marmont reported to Napoleon, "Lord Wellington is quite aware that I have no stores, and is acquainted with the immensely difficult character of the country."²³

On all occasions, historians have provided plenty of information and analysis regarding the Peninsula War; specifically the battles and how Wellington brilliantly used defensive tactics to remove the French from the Peninsula. One reference has been severely limited in review; the role of logistics and how Wellington employed his logistical system to ensure the troops were adequately supplied. The logistic systems employed by Wellington had to consider the terrain and the availability of transport, both wagons and carts and the animals to move them. The fact that the Peninsula region offered little in terms of good, navigable roads, transport, a limited abundance of good sturdy carts, to move supplies, or a timely and dependable form of specie required to pay the local population for their services, added to Wellington's and the commissariat's

²¹Wellington, *Supplementary Dispatches*, 20 August 1810, 6:277.

²²Wellington, *Supplementary Dispatches*, 3 August 1810, 6:302.

²³David G. Chandler, *On the Napoleonic Wars* (London: Greenhill, 1994), 156.

difficulties. To partially overcome these shortfalls, Wellington ensured there were depots close to all major ports and the distance from depots to stores was not of significant distance; this lasted until Wellington moved the fight into Spain. These difficulties will be examined in more detail in later chapters.

Should logistics dictate strategy? Or should strategy dictate logistics? That is the essential problem faced by both Wellington and the French. How they each decided to deal with the problem affected how they fared in the war. The French allowed their logistics to dictate their strategy and it forced the French to deal with the consequences that entailed. Wellington took the other route and had his own consequences to face. Wellington realized early that in order to supply his army with the proper supplies, at the proper time, and in the proper place, he had to secure routes, land, river, and sea, and he needed trusting personnel to account and issue the supplies. He recognized these shortfalls and continually tried to improve on those shortfalls throughout the campaign.

Before the question of how Wellington's system worked, it is necessary to consider how the Portuguese and British governments financed the war effort.

In November 1807, Portugal was invaded by France in an effort to halt Portuguese trade with Great Britain and enforce the Continental System. In December 1807, Portugal's Prince Regent, later John VI, the royal family, and many other influential Portuguese nobles set sail for Brazil to escape French occupation. France ultimately took control of Lisbon and the central seat of government. France disbanded the Portuguese Army, took control of the country's finances and administrative systems, and sent many of its military officers to France along with 6,000 troops to serve in the *Grande Armee*. The Portuguese government pleaded with Great Britain for assistance.

Great Britain's Foreign Secretary, George Canning, assisted in the approval of aid for Portugal which included troops.

From Brazil, the Prince Regent issued a proclamation to the people to support the Council and the British against the French. A *Carta Regia* was issued to restore public financing. It entailed a tax structure reform, currency and coinage strengthened, rents from the crown and church lands collected, a stamp tax established, and various export duties abolished. The intent was to assist with financing the war for Portugal.

CHAPTER 2

SUPPORTING THE PENINSULA ARMY

In 1808 Great Britain had approximately 15,000 troops assisting a small Portuguese Army attempting to defeat the French. In October of 1808 the British were successful in removing the French from the vital port of Oporto, Portugal. That was a short lived victory, as Sir John Moore, commanding the Peninsula army in 1808, attempted to assist the Spanish armies. Spain's armies crumpled and Moore had to retreat to the sea to have what was left of his army evacuated by the Royal Navy.

Wellington was given command of the British troops in Portugal in April 1809; Wellington recommended that William Carr Beresford be made Commander in Chief of the Portuguese Army. Wellington's recommendation was accepted. At this point Great Britain increased the subsidy to Portugal, which began in February 1809 at a rate of 450,000 pounds per year, to support forming a 20,000 man army for Portugal. The subsidy was steadily increased over time; October 1809 increased to 980,000 pounds per year and again in February 1811 to 2,000,000 pounds per year. The subsidy was used to raise the Portuguese Army and pay for war time expenses. This became a contentious issue for Wellington throughout the campaign.²⁴

Wellington assumed command of 20,000 British soldiers in April 1809. His total fighting force was comprised of 40,000 troops (20,000 Portuguese and 20,000 British) plus a Portuguese militia of approximately 50,000. Wellington's biggest challenge would

²⁴Wellington to Lord Castreleagh, 21 July 1808, *Wellington's Dispatches*, 4:23. See Appendix 2 for detailed information regarding the cost of the war.

soon become evident; a lack of supplies, monies, equipment and a disciplined and organized Portuguese Army to carry out his campaign plan.²⁵

In late 1809, Wellington wrote to Lord Castreleagh regarding the cost of the war. In that dispatch Wellington recorded all expenses, to include the Portuguese subsidy, to point out that, at that time, Wellington felt the overall cost of the war would not be a burden on Great Britain.²⁶ This belief would change as the war progressed.

The financing and supplying of the Peninsula army became a challenge for Wellington. He wrote back to London numerous times requesting assistance with specie to cover the debts his army was incurring within the region. Wellington, corresponding to the Secretary of Treasury, W. Huskisson, stated he required additional specie from Great Britain to pay for supplies and army wages. Wellington requested an additional 300,000 pounds immediately for pay, payment of supplies and services and debts in Portugal.²⁷ This became an ongoing theme for the duration of the war and Wellington always ensured he made it clear to the government in Great Britain, that if the government cannot properly fund and supply its military abroad, then it should recall the military so not to force the issue onto him as commander of the force.

Additional to the timely arrival of specie for payments, was the global trade “wars” that would consume Wellington’s thoughts and affect his supply system. Most notable was the political strife between Great Britain and America in 1809 regarding the

²⁵Wellington to John Villers, 31 October 1809, *Wellington’s Dispatches*, 5:266.

²⁶Wellington to Earl of Liverpool, 19 December 1809, *Wellington’s Dispatches*, 5:376.

²⁷Wellington to W. Huskisson, 30 May 1809, *Wellington’s Dispatches*, 4:346-347.

trade of grain. Grain was an important commodity and was not readily available within Portugal or from Great Britain. Its main use was for the feeding of not only soldiers but it was a main staple for horses. American food supplies to the Peninsula, from 1808 to 1814, were critical. Historian W. Freeman Galpin noted this fact presented itself for the first time during the Napoleonic Era. He stated, “in no place was the dependency upon American grain more pronounced than among British forces stationed in Spain and Portugal.”²⁸ Throughout the summer of 1810 and 1811, unprecedented quantities of American wheat and flour, over one million barrels of flour alone, were shipped to the Peninsula.²⁹ Wellington placed great importance on these supplies and monitored the worsening diplomatic relations between Great Britain and America with equal concern.

Wellington and Great Britain continued trying to find alternate arrangements for such food supplies with the Barbary powers, Mexico, Brazil, the Mediterranean area, and the Western islands. Wellington communicated to his brother Henry, “it would be great capital to turn the tables upon these cunning Americans, and not allow them to have any intercourse with those ports (Cadiz and Lisbon).”³⁰ Try as he may, the trade predominance of American trade was already established and all efforts to secure trade with North Africa were unsuccessful. During 1811, a total of 2,121 vessels entered the

²⁸W. Freeman Galpin, “The American Grain Trade to the Spanish Peninsula, 1810-1814,” *American Historical Review* 28 (1923): 24-25.

²⁹*Ibid.*, 24-25.

³⁰Wellington to Sir Henry Wellesley, 10 May 1812, *Wellington's Dispatches*, 9:132-133. Wellington was referring to a trade embargo against America at that time.

port of Lisbon, two-thirds of them arriving before June. One-third of the total, 797 flew the flag of the United States and most of those, 668, carried grain.³¹

In the summer of 1813 several factors combined to almost end this trade. Most important was the collapse of Napoleon's Continental System, which opened the Baltic ports and provided new sources of grain, which Britain immediately sought. Local purchases also increased once Wellington went on the offensive into Spain. Northern Spain was more fertile. Such abundance, which was not available to Wellington's army during the French occupation of Spain, ensured any trade embargo instituted from America would not cause Wellington's supplies to slow down.³²

Thus, while the supply of grain from America to the Peninsula Army could have ended anytime between 1809 to 1812, careful planning by Wellington, the Commissariat and the British government beginning in 1810, ensured that the British armies of the Peninsula would not be as dependent upon American grain as they had been in the past. Despite being at war with a major supplier, America in 1812, no critical shortage was ever felt by Wellington's army.³³

American President Thomas Jefferson had an interesting view when it came to trade with Britain at this time. President Jefferson stated:

³¹G. E. Watson, "The United States and the Peninsular War 1808-1812," *The Historical Journal* 19, no. 4 (1976): 870-871.

³²Gilpin, 24-44.

³³Gilpin, 43.

If we could by starving the British armies, oblige them to withdraw from the peninsula, it would be to send them here; and I think we had better feed them there for pay, than feed and fight them here for nothing.³⁴

In 1810 and 1811 imports became more important. However, by then, due to Wellington's insight and mandate that all magazines be kept with stores of six months, the huge stockpiles were abundant, with the difficulty now lying with distribution and not accumulation.

In an effort to raise revenue for their army, the Portuguese government tried to collect taxes and lift embargos. In 1809 and 1810 the Portuguese government had little success beyond the collection of private contributions in an effort to support their war expenses. The British had already come to the aid of its ally; a subsidy of 60,000 pounds, 27,000 muskets, 17,000 pikes, a loan of 95,000 pounds, and an army of 16,000 men under Wellington³⁵ Portugal's inability to provide for its troops became a challenging diplomatic issue for Wellington, of which he made it publically known more than once.

In a dispatch to Colonel Gordon, Commissary in Chief, Wellington stated:

The (Portuguese) Commissaries have no money to purchase anything in the country. I will not allow the soldiers to pillage. The government has no money to pay for transport of provisions from the magazines on the coast to the army, and are bankrupt in credit, and are unwilling to execute their own law to force means of transport; and the result is that the troops get nothing, and every department and branch of the service is paralyzed.³⁶

³⁴President Jefferson on the trade with Britain, source TBC (accessed 13 March 2011).

³⁵Donald D. Horward, "Wellington and the Defense of Portugal" *The International History Review* 11, no. 1 (February 1989): 45-46, <http://www.jstor.org/stable/40105954> (accessed 14 March 2011).

³⁶Wellington to Colonel Gordon, 12 June 1811, *Wellington's Dispatches*, 8:7.

The remedy to this challenge from Britain was to take on the commissariat role for the Portuguese army. Wellington made it clear that this role could cause the failure of the expedition on the Peninsula:

I have already done as much as I could in this way; that is, under an arrangement which provides for the expense being subtracted from the subsidy. I have arranged that the Commissary General shall provide for those parts of the army serving with the British divisions. I know we cannot do more without failure.³⁷

In June of 1809, Wellington sent a memorandum of agreement to all concerned government parties and to his Commissary General. The memorandum was a way to instruct all parties on how to properly supply both armies; however the memorandum's focus was meant for the Portuguese Commissariat. It contained six points which described, in detail, how the British and Portuguese Commissariat would provide for their army. Wellington stated all points to Charles Stuart, British representative to Portugal, on 5 March 1811 in a dispatch. Appendix B contains the six points of reference by Wellington:

The great inefficiency of the Portuguese Commissariat, and the increasing evils which are the consequence of it, have induced me to endeavor to discover some mode by which some assistance might be given to the Portuguese Government in this branch of their concerns; and, having consulted with Sir William Beresford and the Commissary General, I enclose a memorandum of an arrangement, according to which a large part of the Portuguese army will be fed by the British Commissariat, at the expense of the Portuguese Government; and it is to be hoped that, being relieved from the necessity of supplying so large a proportion of the operating army, the Portuguese Government will supply the remainder in an efficient and satisfactory manner. I beg you to let me know, as soon as possible, whether the plan will be adopted.³⁸

³⁷Wellington to Colonel Gordon, 12 June 1811, *Wellington's Dispatches*, 8:7.

³⁸Wellington to Charles Stuart, 5 March 1811, *Wellington's Dispatches*, 7:342.

Even with the changes in place, Wellington continually had supply challenges. Despite the arrangements agreed upon in 1809 and 1810, the Portuguese government continued to operate with great ineptness. Wellington's patience ran thin when he wrote a dispatch to Stuart regarding Portugal's claim that Wellington had not done enough to support the Portuguese and their cause:

I was in hopes that the arrangement, by which I under took to supply with food three fourths of the Portuguese army, would have given satisfaction to the Government, and that at least the remainder of the troops would have been supplied regularly. The last object has failed entirely; and in regard to the first, the Government, instead of expressing their satisfaction that I should gratuitously have taken upon myself and the British Commissaries increased trouble and responsibility, has, as usual, complained that I have not done enough for them. To these complaints I answer that I can undertake for no more.³⁹

Another issue Wellington had was the amount of subsidy the British government had been providing to the Portuguese. Subsidy became a matter of continual review; and each time it came up, Wellington would demand tax and administrative reform. He proposed a tax on all imported goods, while the Prince Regent increased assessments on lands the crown and church owned, sold land holdings, enacted a stamp tax, reduced the number of imported manufactured goods from Great Britain, and established a lottery. Until 1810, Great Britain supplied aid and most everything else required to form, train, and organize the Portuguese army.

Wellington made numerous suggestions since November of 1809, to the Portuguese government to remedy the currency challenge. Wellington suggested a six step plan to increase revenues, implement standards on certain government departments, make key appointments within the government to oversee the supply and expense for the

³⁹Wellington to Charles Stuart, 8 April 1811, *Wellington's Dispatches*, 7:435-436.

war, put in place regulations for departments to follow and penalties for failure to follow them, and to emplace checks and balances within those departments to ensure proper procedures are followed and adhered to. None of these suggestions would be implemented until 1810 when the Prince Regent capitulated to Wellington's demands, but only due to the mounting pressure from Wellington and his supporters over the years.⁴⁰

Providing for the Portuguese army while trying to support his troops became one of Wellington's greatest challenges throughout the Peninsular War. In addition to Great Britain's aid which in 1810, amounted to 25 percent of all of Portugal's expenses, there were many other subsidies provided: food, camp equipment, uniforms, weapons, artillery, and the cost of forage expenses, bread expense, and numerous other supply stocks.⁴¹

Wellington refused to outright supply the Portuguese troops without a system in place to account for the expenditures. In a dispatch to John Villiers, Ambassador to Portugal, Wellington stated as much:

I have asked for £200,000 every month, in which sum I have included the estimate of a sum of £4000 a month required by you for the Portuguese troops. If you should require more, the supply must be increased in proportion; this in addition to the money which can be got at Lisbon, Cadiz, and Gibraltar for bills. Besides this a sum of money must be sent from England to pay the arrear due to the Portuguese Government. I expect from England £100,000, of which sum you may take £50,000 for the Portuguese Government, when it shall arrive; but I cannot allow any more to be allotted for this service, or any of the money which

⁴⁰Wellington to Charles Stuart, 22 February 1810, *Wellington's Dispatches*, 5:516-17.

⁴¹Wellington to Lord Castreleagh, 23 September 1809, *Wellington's Dispatches*, 5:175-178.

may be got for bills at Lisbon or elsewhere without exposing to want, or even imminent risk, the King's troops under my command.⁴²

Portugal's payment for its troops became another responsibility incurred by Great Britain. Those Portuguese soldiers serving within British divisions were paid their salary by Great Britain. Wellington, through General Beresford, was aware that Portuguese soldiers within the Portuguese army were not being paid regularly. There were 20,000 troops that required pay for their service and that pay was almost always in arrears. Wellington talks about the cost of maintaining the Portuguese army in a dispatch to Lord Castlereagh:

I enclose you an abstract of the last return of the Portuguese forces which I have received. Of this number we pay for 20,000 men £480,000, or, I believe, £500,000 per annum. My belief is that the Portuguese Government cannot go on unless Great Britain will assist them with a million.⁴³

He knew that Great Britain would have to bear this burden if the allies were to prevail in the Peninsula.

By 1811 it was obvious that the British would have to incur the expense and effort to supply their Portuguese ally. In addition, the Portuguese Commissariat was becoming less and less effective; implying that minimal revenues from the Portuguese Government, coupled with the declining subsidy from Great Britain as operations moved into Spain, and the ceasing of loans to the Portuguese, led to the collapse of the Portuguese Commissariat and in 1811, Wellington inherited the formal requirement to support all

⁴²Wellington to John Villiers, 10 June 1809, *Wellington's Supplemental Dispatches*, 4:419-420.

⁴³Wellington to Lord Castlereagh, 30 June 1809, *Wellington's Supplemental Dispatches*, 4:450. Wellington was not adverse to assisting Portugal when he could; however, he did feel it necessary the Portuguese government take on some of that expense and more often.

30,000 Portuguese troops.⁴⁴ There were 54,000 Portuguese militia still being provided for, on a limited basis, by Wellington as well. Wellington described the state and cause for inefficiency of the Portuguese Commissariat to Colonel Gordon, Commissary in Chief:

The Portuguese commissariat, and all the departments attached to that army, is in a miserably inefficient state from two causes: the want of authority to enforce obedience to order and regulation; the want of money to defray the necessary expenses.⁴⁵

The Portuguese army had its internal challenges as well. In 1809, the units lost men constantly, either through desertion or through their becoming incapacitated, efforts were made to restore numbers by recruiting new men, integrating volunteers, and recapturing deserters who were on the run. The perception that the Portuguese Army was not disciplined, lacked the proper equipment, could not support itself, and was generally in a state of disarray was obvious to Wellington. He stated that his ally lacked the discipline and equipment to be much of a factor when it came to defeating the French and needed time to become a fighting unit:

The Portuguese army is not yet in a state of discipline, or organized as it ought to be for service. I have settled with Beresford that he shall collect all that part of it not required for garrisons in a camp on the most exposed frontier, for the double purpose of watching the enemy's movements, and disciplining his officers and troops. If he can get them together for two or three months they will be a fine army, and probably very useful. But in order to effect this object, they must be

⁴⁴Wellington to Colonel Gordon, Commissary in Chief, 12 June 1812, *Wellington's Dispatches*, 8:5.

⁴⁵Wellington to Colonel Gordon, Commissary in Chief, 12 June 1812, *Wellington's Dispatches*, 8:5.

kept clear of the desultory operations of Romana, and other Spanish chiefs in Galicia.⁴⁶

The lack of discipline, low morale, and state of disorganization was something General Beresford could rectify with enough time. Wellington, through Beresford, ensured the Portuguese were not of wanting when it came to supplies, even when the British army did not receive the supplies promised by the Portuguese government. He spoke of this fact in a dispatch to the Honorable Villiers:

When I reflect that the largest sum you have ever stated to be necessary for you is £125,000, I hope that I may say that the wants of the Portuguese army, in money, have been well supplied by us; and I wish I could say, with equal truth, that our wants in mules, carriages, provisions, &c., for which we are ready to pay, had been equally well supplied by them; or that they had been supplied at all. Seven or eight regiments of infantry are at this moment waiting at Lisbon for want of twelve mules for each regiment, to be purchased by the officers, to carry camp kettles, medicine chests, &c!⁴⁷

In July of 1809, Wellington, tired of Portugal's inability to take care of its troops, reiterated his point of discontent with the Portuguese government's handling of the previous agreement between the two countries:

The Portuguese headquarters must accommodate matters a little. I am willing to give everything to the Portuguese army that our stores and means can afford; but it must be done in the way of subsidy to the Portuguese Government, according to the mode which I have repeatedly pointed out. Half the business of the world, particularly that of our country, is done by accommodation, and by the parties understanding each other; but when rights are claimed they must be resisted, if there are no grounds for them when appeal must be made to higher powers there can be no accommodation, and much valuable time is lost in reference which ought to be spent in action. I have never refused any thing that has been asked for the Portuguese Government which our stores could afford; I have invariably given my time and attention to frame the modes in which all assistance could be given,

⁴⁶Wellington to Lord Castlereagh, 30 June 1809, *Wellington's Supplemental Dispatches*, 4:450.

⁴⁷Wellington to Honorable John Villiers, 13 July 1809, *Wellington's Supplemental Dispatches*, 4:480.

and all difficulties occasioned by the orders under which we act could be overcome; but when, instead of adopting these modes, what is wanted is claimed as a right, I must resist every claim of that description, not founded upon the King's regulations; or, if they are persisted in, I must appeal to England.⁴⁸

Great Britain would have to support the Portuguese army; without that army he and Great Britain would face failure on the Peninsula. Wellington needed to buy time and space against the French to build his supply chains, stockpile his magazines, train, equip, and discipline a Portuguese army.

Wellington sent Lord Castreleagh an expense report of the British Army in Portugal for one month, from which it was averaged based on expenses for September, October, and November of 1809. According to the expense report submitted by Wellington it cost the British government 146,353 pounds per month to support the army.⁴⁹ That equates to 2,906,268 U.S. dollars for twelve months.

Wellington's army was supplied continuously throughout the conflict, albeit sporadically at times. Wellington became more than a competent military commander during the Peninsula War; he became politically astute, a leader with a clear vision and purpose, a cunning tactician, and a man of reflection. He understood his enemy, he understood his environment better than most, and he recognized, when many others did not, the challenges of the Peninsula and how to conduct the type of warfare required to defeat a large, better equipped, better trained enemy.

⁴⁸Wellington to Honorable John Villiers, 20 September 1809, *Wellington's Supplemental Dispatches*, 5:165-166.

⁴⁹Wellington to Lord Castreleagh, 23 September 1809, *Wellington's Dispatches*, 5:175-178. See Appendix B for the complete detailed expense report.

Wellington's insight and forethought were his strengths. Wellington had three concepts that he utilized to execute the war: first, the defense of Portugal; second, he needed time to build and train the Portuguese army, third, if he was to push an offensive into Spain, he would require his magazines stockpiled and located in key locations in northern Portugal so he could sustain the offensive momentum he was sure would be created.

CHAPTER 3

SUPPLYING THE FORCE: 1809 to 1811

In 1809 Wellington had to deal with the problems of inadequate numbers of soldiers of good quality, of reluctant or incompetent senior officers, a lack of consistent specie to assist with the supply of the army, and with his Portuguese and Spanish allies. In the early years of the campaign, however, the problem of greater concern was that of securing an adequate logistical basis for the army. Wellington knew this.

In 1810, the logistical strategy imposed for the Peninsula War was fundamental once it was known the French would invade Portugal through Spain. First, the foundation for Wellington's logistical strategy was the transformation of Lisbon and the surrounding areas into a well defended sanctuary where Wellington could protect his troops and resources. Wellington's justification was his fundamental belief that Lisbon, not Cadiz or Gibraltar, was the most defensible area on the Peninsula. It was a bold, yet very skillfully conceived plan that relied on the limitations of the French supply system to maintain large armies in the Peninsula in one place. Wellington estimated that in order for the French to successfully invade Portugal, the French would have to assemble an invasion force of nearly 100,000 men. Therefore, Wellington planned a multi-layer defense of Lisbon that preyed on the limitations of French logistics.⁵⁰

His strategy consisted of three critical tasks. The first task was to implement a scorched earth policy in the areas through which the French were expected to march. By

⁵⁰For more on Wellington's defensive preparations see Donald Horward, "Logistics and Strategy in the Peninsula: A Case Study, 1810-11," *Consortium on Revolutionary Europe* (Tallahassee 1999): 355-63.

destroying all sources of food, Wellington knew any French invasion attempt, if not immediately successful, would suffer from critical shortages of food and supplies. The second task was to arm the Portuguese population by mobilizing the *ordenanza*. These bands of Portuguese militia would dramatically increase the number of men-in-arms but they would also help isolate an invading army by preying on French couriers, supply convoys, and stragglers. The third phase was to build a series of defensive fortifications that stretched from the Tagus River (The Lines of Torres Verdes), north of Lisbon, to the Atlantic Ocean, a distance of nearly 30 miles.⁵¹

Wellington purposefully turned to a defensive style of operations in late 1809. Upon his receiving command again, he made the decision that he had to defend Portugal first in order to defeat the French. With the sea at his back he could arrange for resupply of his magazines and depots by utilizing the ports along the coast. He chose Lisbon as his main supply port. He would arrange stores, supplies and reinforcements to move north once they disembarked at Lisbon. The main magazines within Portugal would become critical to his defense plan. He strategically located his magazines approximately twelve leagues (three miles; or the distance a person or horse could walk in twelve hours; mules

⁵¹Donald D. Horward, "Wellington as a Strategist, 1808-1814," *Wellington: Studies in the Military and Political Career of the First Duke of Wellington* (Manchester: University Press, 1990). The Lines of Torres Vedras consisted of three lines. The first two, 29 and 22 miles long respectively stretched between the Tagus River and the Atlantic Ocean. The third line, a final protective barrier was a two-mile line covering the port of São Julião, from which the army could evacuate if necessary. Each line consisted of a series of mutual supporting strong points, covered by abattis and escarpments, which would make the capture of each strongpoint very costly.

could travel, loaded, three miles per day) apart to ensure for quick resupply when required.⁵²

As depicted below, Wellington ensured magazines and depots were in close proximity to major river systems. Supplies, personnel, livestock, and horses were brought to the ports from England and various other stores (America and Brazil) to be unloaded. Once processed for shipment to the local depots they were moved via supply trains and foot marches.

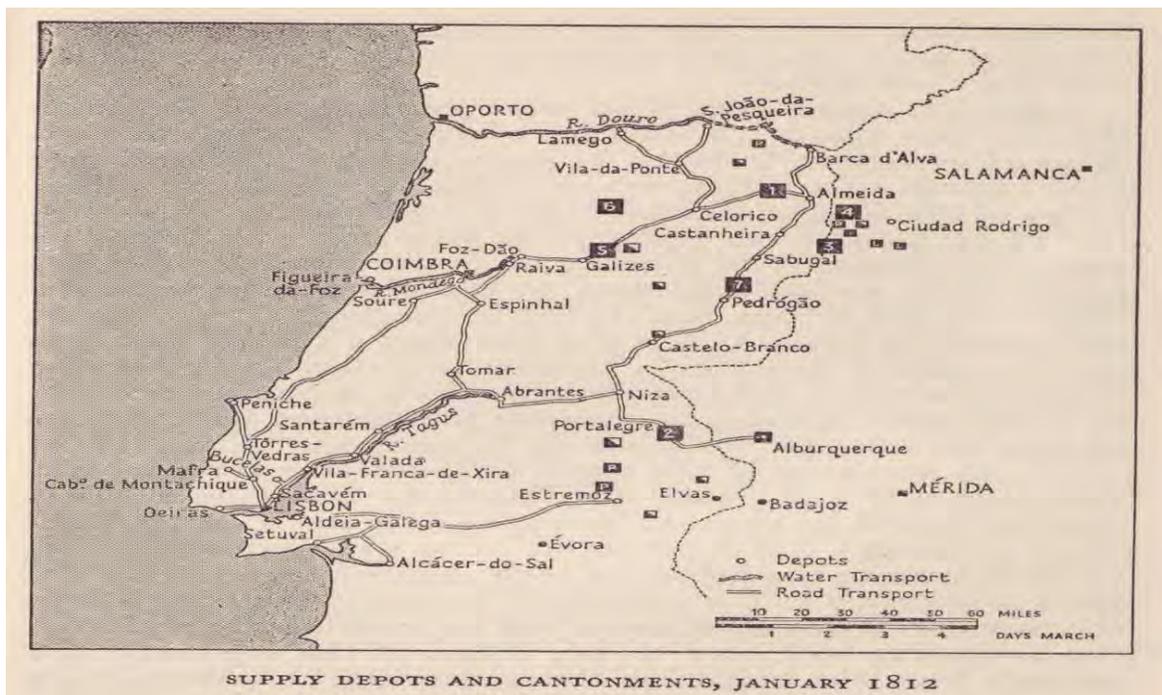


Figure 2. Depot and Magazine Locations in Portugal and Spain

Source: S. G. P. Ward, *Wellington's Headquarters* (Oxford: Oxford University Press, 1957), 92.

⁵²Unit conversion.com, "Leagues to Miles (Roman) Conversion Calculator," <http://www.unitconversion.org/length/leagues-to-miles-roman-conversion.html> (accessed 4 April 2011).

A typical magazine would be supplied with enough provisions to support 10,000 men with bread, meat, spirits, and all other supply items required. The inventory of the magazine would consist of ten days' supply of bread; five days' supply of meat; and ten days' supply of spirits.⁵³ Also, Wellington laid out specifically what each soldier would be provided for each day. One pound of meat, one pound of biscuit or one and a half pounds of good wheaten bread, and one pint of wine or a half pint of spirits.⁵⁴ Horses, bullocks, and saddle mules required ten pounds of oats, barely or Indian corn and ten pounds of hay or cut straw. Pack mules required less; five pounds oats, barley or Indian corn and ten pounds cut straw.⁵⁵

The most notable ports were Lisbon, Coimbra, and Oporto in Portugal and in Spain they were Corona, Cadiz, Alcarta, Valencia, and Santandar. Wellington established main supply depots to store many types of supply that would be carried forward to the magazines.

As of late 1808, there were 30,000 British soldiers and 20,000 Portuguese soldiers that required daily provisions.⁵⁶ This would include their horses, mules, and bullocks for transport, contracted support, and providing some provisions for a militia. For a single day of rations for 50,000 men, over 50,000 pounds of meat, 50,000 pounds of biscuit or

⁵³Wellington to British Commissary General, 1 August 1808, *Wellington's Dispatches*, 4:45.

⁵⁴Wellington to British Commissary General, 1 August 1808, *Wellington's Dispatches*, 4:42.

⁵⁵Wellington to British Commissary General, 1 August 1808, *Wellington's Dispatches*, 4:46.

⁵⁶Wellington to Castlerleigh, *Wellington's Dispatches*, 15 July 1808, 4:17.

75,000 pounds of good wheaten bread, and 50,000 pints of wine or 25,000 pints of spirits were required each day.⁵⁷ In today's terms this would easily fill three eighteen wheeled tractor trailers.

The required daily supply of subsistence was a difficult task for the commissariat to meet. Cattle meat was difficult to come by in the Peninsula. One cow weighing on average 1,150 pounds could produce 568 pounds of meat, after removing the fat and bone from the carcass.⁵⁸ This amounted to supplying 568 men for one day. The 568Five-hundred and sixty-eight pounds of cattle meat needed per day to feed 50,000 soldiers required the slaughter of 106 cattle per day. When cattle could not be bought or found for consumption, the commissariat would utilize salt meat. This is a form of meat that was preserved in barrels by using salt and brine. The process did not take long to complete and the meat could be transported to magazines without fear of going bad. One barrel of salt meat could store up to 100 pounds of meat; or enough meat for 100 men for one day.⁵⁹ That being said, it would take over 1,000 carts to move the 5,000 barrels required. One cart could hold six barrels of salt meat. Biscuits, prepared to provide one pound per man per day, consisted of other ingredients that required transport as well. Eggs, baking powder, baking soda, salt, oil or lard, and melted butter were required. A typical recipe in

⁵⁷Wellington to British Commissary General, 1 August 1808, *Wellington's Dispatches*, 4:42-46.

⁵⁸Robert Hughes, *The Fatal Store; Epic of Australia's Founding* (New York: Vintage Books, 1988); The Old Foodie, www.theoldfoodie.com. (accessed 7 April 2011).

⁵⁹*Ibid.*

today's terms would produce 24 biscuits, or enough to feed two men per day.⁶⁰ Preparing biscuits for a cavalry troop of 240 men meant that 2,880 biscuits had to be made that day. Spirits were the easiest of all commodities to come by. Transporting 7,500 pounds per day was usually decreased as the men could find spirits already in the locations where they took up cantonments. All of this had to be transported from Lisbon or other port locations to the magazines weekly.

The roads in Portugal were so bad that by 1810 it had become clear that even the small carts of the Beirao peasant with its solid wheels and moving axels, designed to withstand the rough wear of the country paths, was unsatisfactory for the "second echelon" transport, so Wellington, on the advice of Commissary General Kennedy, ordered the exclusive employment of mules.

By the end of 1811 Wellington ordered the construction at Lisbon, Oporto, and Almeida, the three main supply depots, of some 600 carts upon an improved pattern, which were to be entrusted to drivers and conductors employed directly by the Commissariat. They were organized into brigades, sub-divisions, and grand divisions, and became known as the Commissariat Car Train.⁶¹ Wellington ordered the carts built not just because of the road networks, but the cost of repairing and procuring the smaller carts was becoming an additional expense that could not be afforded at the current pace.

⁶⁰Allrecipes.com, "Easy Biscuits," <http://allrecipes.com/Recipe/easy-biscuits/Detail.aspx> (accessed 17 April 2011).

⁶¹Memorandum by Wellington, 20 November 1811 (*Dispatches* 5:370); correspondence of Capt. Whittle, Royal Wagon Train, engaged in collecting timber at Rochoso for the new wagons, November-December 1811 (*Commissary-General Kennedy Papers*).

Contract, requisition, the Commissariat Car Train, and the Royal Wagon Train were the resources upon which the commissariat relied for obtaining the immense quantity of transport needed to carry the multitude of stores from depot to magazine. Meat was transported up on the hoof under the supervision of the commissariat (which made for pretty tough eating by the time it arrived). All other provisions for the army were carried on commissariat transport. To include medical supplies (two carts for twenty-four bearers for wounded, one case of utensils, and a medical chest), camp equipment (for artillery, 250 mules each carrying 2,000 rounds of musket ammunition; for the Quartermaster General, 30 mules for entrenching tools and for the Commissary General, the remainder of carts for pay), and the clothing of each regiment, became in fact, a heavy task shared between the commissary and the Quartermaster General.⁶²

The system of replenishing the depots was nothing new to the army. The novelty of the Peninsula system consisted, first, in the extent to which the operation of transport and supply fell upon government servants; and secondly, in the creation of what has been called here the “second echelon” transport.

In other wars, transport and even supply were simply acquired via contracting. The Treasury representative, the commissariat, would acquire goods and services via their office in London. In the Peninsula, as one Commissary General wrote, “it is not with

⁶²Murray to Lieut-Col. Petrie, commanding the 79th, Fuenteguinaldo, 12 August 1811 (*Murray Papers*, 6I, 38-39): “the public documents of the army are under no responsibility in regard to the clothing of regiments, and that it is a matter of indulgence only that such facilities are afforded from time to time in regard to the conveyance of it as the commanding officers of regiments may request.”

us as was formerly the practice with armies on the continent of Europe. We have no contractors; everything is within ourselves.”⁶³

The commissariat in the Peninsula was always in the field making arrangements for transport and resupply. They could be found shivering around a charcoal brazier in a farmhouse on the confines of Portugal, bartering and haggling with muleteers who were two years in arrears for their pay. The charge of incompetence and inexperience so often brought against the commissaries in general, not only in this war but in others, bears a rather different aspect when viewed in this light.⁶⁴

Commissariats had the responsibility of providing transport for the two primary items requiring movement; subsistence and artillery. Moving ammunition, especially artillery, was a major undertaking. The siege train, as the movement was called, was large, moved slowly, and took numerous assets. For example, a siege tended to use up guns very quickly, due to the high rate of fire and heavy expenditure of ammunition wore guns badly, particularly the brass guns. The manufacture of new heavy equipment took time. Therefore, this meant that it was necessary to have production of heavy equipment going on throughout the campaign in the Peninsula, with regular shipments overseas to those doing the fighting.

Carriages, which moved artillery and their wheels, were in constant need of repair and large parties of wheelers (carpenters experienced in making and repairing wheels) whenever the siege train had to move any distance. There were frequent stops to allow

⁶³C. G. Bisset to J. C. Herries, Commissary-in-Chief, Malhada-Sorda, 12 February 1812 (*Commissary-General Kennedy Papers*).

⁶⁴Ward, 91.

axles to be greased and to repair damaged wheels.⁶⁵ Not only guns, but ammunition in huge quantities was needed. The ball, shell, powder, and fuses for a wide variety of equipment required transport as well. Logistic problems in supply, storage, and transport were not easily overcome. Typically, for a siege train, the ammunition being moved up for the operation consisted of:

Table 1. Siege Train Composition

EQUIPMENT (X 1000 Kgs)	NUMBERS	RPG	TOTAL ROUNDS	TONNES
24 pounder	34	800	7,200	296
18 pounder	4	800	3,200	26
5.5 inch howitzer	16	400	6,400	44
8 inch howitzer	2	400	800	15
10 inch howitzer	8	400	3,200	135
Powder		900 barrels		37
Total			20,800	553

Source: Brigadier K. A. Timbers, Historical Secretary, *Siege Artillery in the Peninsular War* (Royal Artillery Institution, Woolwich: 1995), 231-232.

NOTE: These weights do not include boxes or packing, so that a further 10 percent should be added to give a fuller picture of the load.

This brings to light the immense challenge for the larger sieges, such as the siege of San Sebastian. This siege required 1,169 tons of artillery and over 5,000 oxen, horses and carriages, and personnel (37 drivers and a team of six soldiers for each gun) to move

⁶⁵Brigadier K. A. Timbers, Historical Secretary, *Siege Artillery in the Peninsular War* (Royal Artillery Institution, Woolwich: 1995), 231.

the guns, powder, and ammunition. In today's terms this would require 49 eighteen wheeled tractor trailers to move this amount of ammunition and equipment.⁶⁶

Transporting a siege train was clearly a major logistical problem. In addition to the heavy burden of ammunition, there was immense weight of the guns to be hauled, whether on their firing or traveling carriages. Wooden wheeled, unsprung carriages with heavy, dead weight loads had to move on difficult country roads, negotiating not only the plains but also the difficult mountainous passes between Portugal and Spain. When possible, the heavy trains would be moved by boat, and the River Douro was certainly much used in this way. However, movement by boat brought on additional challenges when loading and unloading. Lifting and securing on the small boats was carried out by usarriages of the peninsula; using sheer legs, ropes, and pulleys.⁶⁷

For military purpose it is essential to make a distinction between main routes, country roads, and mere mule tracts. The main northern road into Portugal was the paved road from Ciudad Rodrigo to Almeida, approximately 30 miles. The regular use of this route, by mules and wagons, gives a strong indication to the suitability of the roads for their particular modes of transport.

The southern route from Lisbon to Estremoz, 106 miles, is over the relatively flat country to the south of the Tagus. However, to the east of Estremoz the road crosses the Sierra de Alihedreira; this is probably why the supply route for wagons stopped here, and the continuing road to Elvas was by mules.

⁶⁶Timelyvisa.com, <http://www.timelyvisa.com/other/number-tons-short-pounds.html> (accessed 17 April 2011).

⁶⁷Timbers, 231-232.

The southern route from Lisbon to Almeida, 221 miles, for both supplies and post, went to Abrantes, then crosses the Tagus to Niza, before re-crossing to the north bank, heading to Castelo Branco.

The northern routes to Almeida followed the Tagus, and branched north through Tomar and Espinal. Supplies could be transported up the River Modego as far as Raiva and Foz-Dao. It then followed the *chaussée* south of the river, through Celorico, to Almeida. You could not maneuver easily throughout the Peninsula, even if the roads were of good shape and construction.

In all, a supply train would have to cover these distances mainly by means of mules. Such distances covered, would take anywhere from ten days to over 70 days of movement; the reason Wellington insisted that magazines be no more than 40 miles apart in distance, cutting down the travel time to four days travel.

General supplies were not the only supply items that had to be provided. The Cavalry had to have food and forage for its horses as well as its personnel. The strength of a cavalry regiment varied greatly, but an average regiment in the cavalry in 1809 had strength of 240 men. To show the scale of the logistic level, for one day, it would take seven mules to transport meat, eight to transport bread, seven to transport spirits, and seven to transport rice. In terms of carts, it required three carts each for meat, bread, spirits, and rice. Using mules for transport created a larger supply train, however, with specie in such short supply and the army in arrears for payments on past services, mules was usually the preferred method of transporting. In addition, a cavalry troop had approximately 206 horses to care for. That requirement meant another 69 mules and seven carts for transport. Including the spare mules/carts, one spare mule and cart for

every six mules and carts, this movement would increase by 29 mules and one cart. That is a total of 205 mules and carts for transport. The length of the convoy could stretch as far as one mile in some cases. Also, supply trains became prime targets of opportunity for the enemy, as the French were in dire want for supplies throughout their time in Portugal.

The supply train was slow and the carts slowed the pace down due to maintenance which was mainly broken wheels. In addition, the size, shape, and general condition of Portugal's road ensured that most movements were slow and difficult.

Transport was provided by pack mules the majority of the time. Portugal had a shortage of good horses and bullocks to carry the heavy loads required for such a force. Another consideration was the cost of carts and bullocks, versus the cost of mules. Mules were much less expensive. A cart could carry twelve times what a mule could carry; therefore they were much more expensive, averaging twenty to twenty-five reales for cart and fourteen to fifteen reales for a mule per day.⁶⁸ In addition, the roads were not conducive to large formations or large carts. Therefore, most of the supply wants had to be transported by mules and smaller carts. Each small cart held no more than 600 pounds, per Wellington's instruction. To move a magazine of stores for 10,000 men required a total of 353 carts alone. The carts would have to be procured by local purchase which induced the commissariat to be proactive and ingenious to ensure the means of transport was made available. Pack mules would haul 224 pounds of supply, of which they carried every pound that could be utilized. As well, each mule was required to carry their own

⁶⁸Wellington to Commissary-General Kennedy, 1 August 1808, *Wellington's Dispatches*, 4:46.

corn feed or ten pounds of corn.⁶⁹ Ten pounds of corn is what a mule would eat per day. If the supply train was to move 30 to 35 miles to the next depot it would take three to four days of travel. Meaning the mule would require feed both to and from the depots, or 80 pounds of corn in all.

For the marching of soldiers Wellington specified, to Commissary General Kennedy:

The troops will land and carry four days bread and two days meat for their march; Besides this quantity of bread to be carried by the men themselves, a quantity, equal to three days' consumption for 10,000 men, must be carried, if possible, on the backs of mules; vie., two bags, or 224lbs, on each mule; this will require 130 mules.⁷⁰

Overall, the army suffered from logistical shortages that were the direct result of poor planning by the commissariat in London. The most severe of these problems occurred due to shortages of contracted civilian transportation for the army's logistics and artillery wagons. The fundamental reason for the Commissariat's oversight in providing the correct number and type of transport lay with its misunderstanding of the importance of a new system of logistics in the Peninsula. In order to examine the Commissariat's shortfall, it is necessary to address its assumptions that led to the Peninsula's shortages.

Prior to the British experience in the Peninsular War, the commissariat had relied primarily on civilian contracted transportation to move the army's supplies and artillery. These contractors worked for a civilian agency known as the Army's Commissariat, administered directly by the Chancellor of the Exchequer in London. The majority of this

⁶⁹Wellington to Commissary-General Kennedy, 1 August 1808, *Wellington's Dispatches*, 4:45-47.

⁷⁰Wellington to Commissary-General Kennedy, 1 August 1808, *Wellington's Dispatches*, 4:45-47.

transport came in the form of mules, carts, and carriages. While the reliance on horse-drawn transport had been effective in the British Army's previous campaigns in the Low Countries, the system failed in the Peninsula. The main reason for failure was the lack of ample roads. Because the majority of the roads in Spain and Portugal were too crude and poorly maintained to support heavy wagons, the government failed to recognize that the most effective means of transporting the army's supplies was ox carts and mules. Despite their sloth, ox carts, with their solid wood wheels were more durable than horse cartwheels and could carry more weight. One Commissary Officer, Adolf Schaumann, described the carts in detail: "Their carts, with solid wooden wheels and rough plank bodies, appear strange. They were so primitive that the screeching of their ungreased axles had probably sounded over the Portuguese countryside unchanged for thousands of years."⁷¹

All carriages required draught animals in large numbers. A single twenty-four pounder gun needed at least sixteen oxen (eight pairs). At times the siege trains would deliver their commodities in stages. This took far too long in most cases for delivery. As an example of the numbers to move carriages, at one point, in 1811, on a move to Almeida, the siege artillery used 1,100 oxen for the guns alone. They needed to be fed and watered throughout the movement. A lot of time was spent finding regular supplies of food for the animals, which again points to the high logistic cost of the siege train and why Wellington was so particular regarding supply.⁷²

⁷¹Robertson, 52.

⁷²Wellington to Commissary-General Kennedy, 1 August 1808, *Wellington's Dispatches*, 4:233.

In describing supply carts, each cart was drawn by iron-shod bullocks harnessed to the axle by a wooden yoke and leather straps. They could pull a cart-load up to 600 pounds, which was enough food for 500 men for one day, at an average rate of three miles per day. Therefore, the procurement of mules, ox carts and contracted drivers became crucial to any logistics system in the Peninsula.⁷³

Bullock's (ox's that pulled the carts) provided food as well as transport. Animals that could no longer haul a cart suffered the same fate as those that accompanied the Royal Fusiliers as a source of fresh meat for every man on the march to the battle. Wellington called this "convenient animal food, walking with you"⁷⁴

The echelon of transport most utilized was the first level of transport or the regimental system. This system pertained to the regiment level units. The size of the regiment would dictate the size of the supply train. The average short tons of a siege train were approximately 553 short tons, or 1,106,000 pounds.⁷⁵ Today, this equates to twenty-three tractor trailers or nineteen rail cars. The requirement for animals to pull the carts was astounding. On average 2,500 oxen and carts or 5,523 mules were needed to transport supplies via carts or carriages. Adding the number of horses, mules, and cattle to this train commissariat's now had to provide for well over 6,000 animals. The size of the siege train averaged one mile long plus the soldiers with it that require subsistence as well. A cavalry regiment averaged, in 1810, 500 to 700 men, 6,000 animals, and the equipment for the regiment, the carts and carriages. Then consider conditions of the road

⁷³Robertson, 32-33.

⁷⁴Reid, 105.

⁷⁵Timbers, 231-232.

networks that the army had to operate on, it was a supply train that consisted of well over 1,500 carts or carriages, with supplies of all types. This is why Wellington insisted on depots and magazines no more than 40 miles apart at various points along the coast of Portugal.

The three echelons of transport were: First Echelon, (which was talked about previously) the transport which accompanied each regiment. Throughout the greater part of the war this transport took the form of mules. This system was mostly daily rations, camp equipment, camp-kettles, the surgeon's panniers, and the paymaster's chest.⁷⁶ The mules were paid for and maintained by an allowance, made twice yearly to the regimental commissariat's responsible for their upkeep, known as Bat money.⁷⁷ The number of mules, thirteen for an infantry battalion and fourteen for a cavalry regiment, was fixed by General Order, and they were used for which they were prescribed.

The Second Echelon, was what was generally referred to as the "division mules", a number of mules attached to each Anglo-Portuguese infantry brigade, cavalry regiment and field brigade of artillery. They were under the exclusive supervision of the divisional or regimental commissary. They generally moved back and forth between the formation or unit and its supplying depot. An infantry division complete with its brigade of artillery (six guns) would therefore possess a supply train of between 400 and 600 mules.

⁷⁶Robertson, 265.

⁷⁷Bat money at the rate of 28 pounds, 5 shillings, and one pence was payable in advance to captains of companies, the surgeon, and paymaster, on 1 March and 17 Sept each year, on the certificate of the Quartermaster-General by the Commissariat. But payments both of it and of Forage Money, the allowance granted to all officers keeping horses (usually made simultaneously and known collectively as Bat and Forage Money), were in the Peninsula at least six months.

Wellington had already figured the math regarding how many mules it would take to transport for a regiment. It was based on the distance between the depot and the troops.

Wellington wrote:

When carrying the necessary supplies for a cavalry regiment, will carry corn for a horse for 20 days; and it is calculated that a mule will travel four leagues a day. A regiment of cavalry therefore ought to be supplied with mules to carry corn to the horses in such numbers as will bear the same proportion to the number of horses in the regiment as the number of days the mules will be travelling to and from the magazine will bear to 20. Thus, if the regiment is 8 leagues from the magazine the mules will be 4 days going to and from. The number of mules, therefore, which the regiment ought to have to keep up the supply, should be one-fifth of the number of horses in the regiment.⁷⁸

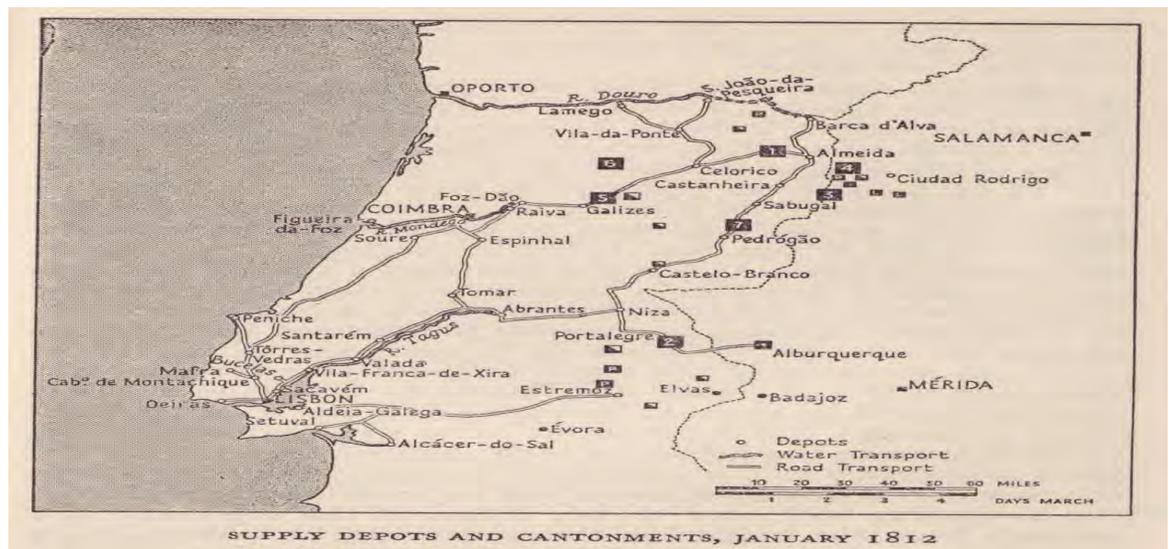


Figure 3. Depot and Magazine Locations in Portugal and Spain

Source: S. G. P. Ward, *Wellington's Headquarters* (Oxford: Oxford University Press, 1957), 92.

⁷⁸Holograph memorandum by Wellington headed Memorandum for Mr. Kennedy; undated but endorsed August 1811 (*Commissary-General Kennedy Papers*). See also Wellington's Memoranda for the Commissary-General, Freinda, 20 and 21 November 1811. *Wellington's Dispatches*, 5:371-73, 375.

Wellington allowed for an average distance of twelve leagues (36 miles) between troops and depot and the usual number of mules for each infantry brigade, cavalry regiment, or field brigade of artillery varied between 100 and 150.⁷⁹

The Third Echelon, was the immense train of bullock-cars that replenished and charged the depots. They travelled three leagues per day and moved from one depot to the next in stages. Bullock-cars were the most common form of transport in this third system, but over stages nearer the coast great use were made of boats.⁸⁰ Bullock-cars could carry much more than mules. When used one bullock-car could carry as much as twelve mules.⁸¹

All echelons of transport were utilized throughout the campaign. The first echelon, transport with a regiment, was the most common. Each commissariat attached to a regiment was solely responsible for the procurement of such transport. If there were not enough wagons available, they utilized additional mules. If that was not enough for transport, then the commissariat would request, from higher up, additional wagons or mules. Wellington would personally oversee and advise on such transactions. He would either release the required asset or give specific direction as how to procure the needed assets.

⁷⁹Ward, 86.

⁸⁰Ibid., 87.

⁸¹Holograph memorandum by Wellington headed Memorandum for Mr. Kennedy; undated but endorsed August 1811 (*Commissary-General Kennedy Papers*). See also Wellington's Memoranda for the Commissary-General, Freinda, 20 and 21 November 1811. *Wellington's Dispatches*, 5:371-73, 375.

The Royal Navy played an important role in securing and delivering supplies from Great Britain and other worldwide locations. Near the coast great use was made of boats. The Tagus was usually navigable by the smaller river boats known as fragats as far as Abrantes, which became an important commissary station, and as one officer called it ~~the~~ "the mirror in which the Commissariat Department may be seen."⁸² The Mandego River was navigable in winter to Foz-Dao, in summer to Raiva. The most important of three great rivers of Portugal was the Douro River. Flowing between the great vineyards of the port-wine growers, it possessed a highly developed system of navigation. In all seasons it was passable for large boats (*matirzes*) to the Vale de Lucaia near Lamego; smaller boats (*trafegueiras*) could reach Quinta dos Carvalhos near St. Joao-da-Pesqueira, and in winter, after the Engineers had improved the bed of the river in 1812, it could be navigated safely to the Portuguese frontier at Barca-de-Alva. The dry season (July thru October), however, inevitably brought with it a lengthening of the lines of communication, the need for more carriages and carts, and the need for more bullocks, and the consequence of further expense.⁸³

Giving heed to the 1809 campaign, Wellington spelled out, in a memorandum, what each soldier would carry three days' supply of bread:

Troops March: Every troop will have on them three days' supply of bread. Cavalry and Artillery will carry three days forage. Three days cattle for each brigade/regiment. Bread will be carried by the pack mules, but if not enough mules existed than split the load between the mules and carriages. The assistant commissary will do everything in his power to procure supplies on their routes

⁸²Scovall's Diary (W.O. 37/6), under entry dated 11 April 1809.

⁸³Wellington to Lord Liverpool, Castelo-Branco, *Wellington's Dispatches*, 1 August 1811, 1:94.

through Portugal. When time is not permitted to do so, order supplies for the upcoming troops or for the next depot to be formed.⁸⁴

It is important to understand that from 1809 to 1811 Wellington was supplying a force committed to the defense of Portugal. Therefore, the movement requirements were far less than an army on the offensive. Wellington, in a dispatch to the Commissary General Kennedy, made this point clear. The memorandum referenced employment of the mules used for supply. It stated that the supply of troops would be no more than twelve leagues (three miles) from a magazine; loaded mules traveled twelve leagues in three days while unloaded mules could make the journey in less time. The mule's payload was 200 pounds of supply plus its own,⁸⁵ which meant the total transport time was six days; three days to the magazine and three for the return. Wellington insisted that return trips had to utilize, to the maximum, the maximum payload of the mules for a more efficient use of transportation assets and to cut the expense Great Britain was paying for. Back hauling would consist of injured or dead soldiers, equipment no longer required for the peninsula fight, prisoners, and guards to monitor the movement.

Mules would transport the needs of the cavalry horses as well. Cavalry horses had to be attended to and maintained very particularly. This required the mules to transport the food for the horse. One mule would transport six days of corn for the horses on the

⁸⁴Wellington Memorandum, 2 May 1809, *Wellington's Dispatches*, 4:154.

⁸⁵Wellington to Commissary-General Kennedy, *Wellington's Dispatches*, 20 November 1811, 8:418-419.

march, plus an additional twenty pounds of corn for emergencies.⁸⁶ Another example of the importance mules brought to the transportation picture.

As an illustration of the requirement for the horse, whether they are cavalry or artillery horses, Wellington gave instructions to J. Bisset, Commissary General. For the Light Division of 4,800 men the requirements for transport were, 144 mules to carry the biscuit, 48 to carry the spirits, and twenty-four to carry the rice.⁸⁷ In addition, the Light Division had 398 horses. The requirement to provide transport for the supply of the horses was 116 mules. That would be a total of 335 mules for the transport of the Light Divisions supplies. However, Wellington was one to not overlook the fact that things happen when conducting movements and there was a need for spare mules as well. That requirement was one spare mule for every six mule's employed. This meant 55 additional spare mules. The total, to include the spare mules was 387 mules to transport its supplies. The cost of a mule was the responsibility of the attached commissariat to that organization. Generally, it was one shilling per mule per day. In addition to that cost, the unit had to provide food, water, and any other support that the muleteer, the person who owned the mules, required while in the service of the army.⁸⁸

The cavalry requirements were unique. First, the cavalry had to be regularly supplied with forage. One horse required ten pounds of corn per day and twenty pounds

⁸⁶Wellington to Commissary-General Kennedy, *Wellington's Dispatches*, 20 November 1811, 8:419.

⁸⁷Wellington to J. Bisset, *Wellington's Dispatches*, 20 September 1809, 9:254-257.

⁸⁸*Ibid.*

of good forage. That required the mules for the transport of the corn, plus additional mules for the transport of forage.

In most locations within Portugal there was a lack of good and healthy forage for the large cavalry horse. A horse that weighs 1,000 pounds requires twenty pounds of forage per day; which required one to one half acre of good forage land to feed on.⁸⁹ To put that into perspective, the Light Division with its 398 horses required 7,960 pounds of forage. To provide the acreage needed, the division had to ensure there was approximately 600 acres of good forage land to feed 398 horses. In order to maintain the horse's strength, it required good forage, not the ground fodder that Portugal's topography provided. If a cavalry horse had to depend on Portugal's interior, they would lose strength and health rather quickly. Therefore, it was of the utmost importance that good forage be provided and in abundance. Refer back to the example of the light division. Carrying forage required an additional 398 mules. That would bring The Light Division's total transport requirement to 785 mules, to transport supplies for itself. Each regiment or division had 100 to 150 mules attached to it. This meant the regiment required another 635 mules when it moved.

The cost for such a movement of troops, carts, and horses was thought to be 70,000 pounds per month. Wellington mentions costs when he described the requirements for the Siege of Badajoz in 1811. At the time the British army had 4,299

⁸⁹eHow.com, "How Much Acreage Is Required to Feed a Horse?", http://www.ehow.com/way_5862901_much-acreage-required-feed-horse_.html#ixzz1Is0lYUue (accessed 7 April 2011). Estimates vary, but it is generally believed that each horse needs at least 1 1/2 acres of pasture, with the ideal amount being 2 acres allowed per grazing equine. A horse eats about 1 to 2 percent of its body weight each day in the form of pasture forage. That means a 1,000-pound horse eats up to 20 pounds of pasture forage each day.

cavalry horses in the Peninsula. Of those, 3,073 were British horses; horses of good strength and stamina. The remaining 1,226 horses were obtained in Portugal, but of less quality. Wellington mentions that to feed 2,000 men and 2,000 horses for 30 days it would cost 11,050 pounds in sterling silver.⁹⁰

Supplying the armies on the Peninsula took time, required numerous types of resources, and had to be accomplished using road networks not fit for such transport. Most of the time supplies were not readily available; therefore the men would have to resort to forging, buying, and even at times, stealing food. The Talavera campaign showed how bad conditions could be when supplies did not arrive. Wellington openly described the dire straits in which the British led forces found themselves regarding rations to Marshal William Beresford:

We are starving, our men falling sick, and we have nothing to give in the way of comfort for their recovery. We have not had a full ration of provisions ever since the 22nd of last month; and I am convinced that in that time the men have not received ten days bread, and the horses not three regular deliveries of barley.⁹¹

The poor experience of the 1809 Talavera campaign showed how important Wellington's logistic system was.

Wellington purposely selected Lisbon as his main logistics hub to receive supplies and reinforcements. Selecting Lisbon allowed for a safe embarkation port, was easy to defend, and had easy access for the Royal Navy. The Tagus River at Lisbon was large enough to birth hundreds of vessels bringing supplies, plus it was a vital center of trade. Wellington's plan to defend Portugal first, stretch the French lines of communication,

⁹⁰Wellington to General Beresford, *Wellington's Dispatches*, 26 July 1811, 8:152-53.

⁹¹Wellington to General Beresford, *Wellington's Dispatches*, 24 June 1809, 4:560.

utilize the local militia to harass the French, and to build defensive lines bought Wellington the time and space he needed to build a Portuguese army, stockpile his supplies at magazines strategically placed within Portugal, and to season his British army for the fight to liberate Spain in 1812.

CHAPTER 4
THE OFFENSIVE, 1812

In the fall of 1811 Wellington began making arrangements to supply the army once offensive operations started. Capturing Ciudad Rodrigo and Badajoz, the northern and southern routes into Portugal, would be the catalyst that would propel the army towards Salamanca. They were key fortresses on the main invasion routes between Spain and Portugal.

It was clear, by the fall of 1811, that Napoleon was redeploying troops from the Peninsula to France. Wellington spoke of this advantage in a dispatch to Earl of Liverpool:

In respect to the general action, I believe there is no man in this army who entertains a doubt of its result, and that sentiment alone would do a great deal to obtain success. But we possess solid physical advantages over the enemy, besides those resulting from recent successes. Our infantry are not in bad order; our cavalry more numerous in relation to the enemy, and the horses in better condition than I have known them since I have commanded the army; and the horses of the artillery in the same good condition and complete in numbers, whereas the enemy are, I know, terribly deficient in that equipment.⁹²

Prior to mounting the offensive, Wellington discussed preparations for the siege.⁹³ Typically a siege took time to prepare for as Wellington stated in a dispatch to Lieutenant General William Bentinck, one of his commanders:

The great object in all sieges is to gain time. The preparation and collection of materials for a siege necessarily take many days, which might be employed in

⁹²Wellington to Liverpool, 26 May 1812, *Wellington's Dispatches*, 9:170.

⁹³Wellington to Hill, 6 June 1812, *Wellington's Dispatches*, 9:215-216.

carrying on the operations, if those materials were collected and prepared beforehand.⁹⁴

The fortresses of Almeida and Ciudad Rodrigo controlled access to the northern invasion route into Spain. The magazine at Almeida would be utilized to move supplies forward to Ciudad Rodrigo and eventually on to Salamanca. The importance was their location to a vital entrance into Spain where supplies could be stored and moved forward to the front.

What was critical was securing both the northern and southern invasion routes into Portugal. Wellington made preparations to counter the effort by supplying Almeida with provisions and equipment necessary to besiege Ciudad Rodrigo and then conduct the offensive. Wellington specifically talked about the French operations in the north while still concerned about French actions in the south near Badajoz:

If I should succeed, much will depend upon the plan adopted by the enemy. Marmont appears inclined to carry on operations to the northward, and I may be obliged to remove the army again to that quarter. My wish is to oblige Soult to evacuate Andalusia, which I should affect if I could be sure of the Spaniards holding their ground in Galicia.⁹⁵

Commissary officers would arrange for the stocking of magazines and transport assets to move supplies to Elvas, Almeida and later Badajoz. Mr. Routh, commissary officer at Elvas, made arrangements and procured the necessary provisions per Wellington's orders.⁹⁶ The Elvas-Badajoz corridor would be set as a defense to prevent

⁹⁴Wellington to Lt. General Lord William Bentinck, *Wellington's Dispatches*, 24 March 1812, 9: 6.

⁹⁵Wellington to Lord William Bentinck, 24 March 1812, *Wellington's Dispatches*, 9:7.

⁹⁶Wellington to Hill, 6 June 1812, *Wellington's Dispatches*, 9:215-216.

French units, not part of the main effort in the north, from entering Portugal from the south. It would take three days to march from Almeida to Ciudad Rodrigo and it was a one to two day march from Elvas to Badajoz.

In order to keep the forces besieging Ciudad Rodrigo supplied, supply trains from Almeida to Ciudad Rodrigo arrived continuously. Supply trains consisted of 170 carts for bread, 100 carts for meat, 37 carts for spirits, 353 mules or bullocks to pull the carts, another 116 mules and carts to pull food for horses, and an additional 55 mules and carts as spares for the march. The entire supply train would be as long as one to two miles. It was the equivalent of one and a half rail cars or five tractor trailers of 40 feet in today's terms.

For the siege of Ciudad Rodrigo in January a large artillery siege train was pushed forward to the area of operation prior to the provisions. Artillery siege trains would always move forward before the supply trains as an artillery siege was usually the first phase of a siege. The supply trains would follow the army two to three days later, due to the lack of transportation assets on hand. The commissary officer assigned to the unit would have to wait for assets to return from the artillery siege trains to fully load the provisions required for the siege.

It is important to point out the number of assets needed to support an artillery siege train, to compare an artillery siege train and a supply train. The typical artillery siege train was much larger than a supply train. The siege of Ciudad Rodrigo required 3,590 mule loads; each mule carried 224 pounds, to haul the eighteen and nine pound shot. It took another 1,200 mule loads to move 2,523 barrels of powder. In all, the

estimated total weight of the munitions expended amounted to over 437 short tons.⁹⁷ In terms of today's logistics, this would equal twenty-one tractor trailer loads or fifteen rail cars.⁹⁸ As stated earlier, every mule required a daily ration of five pounds of hay and ten pounds of oats.⁹⁹ These requirements would put a substantial strain on the transportation assets for the siege. Such figures may give some idea of the large amount of materials and forage carried forward to the front when conducting a siege.

Cuidad Rodrigo would be the first of the two key cities put under siege. The siege began 8 January 1812 and ended twelve days later. Once Cuidad Rodrigo had been captured the army turned its focus to Badajoz. Badajoz is situated on the Guadiana River. Badajoz commanded the routes into southern and central Spain from Portugal, south of the Tagus River. Supplying the siege of Badajoz required 60 days provisions for 5,000 men,¹⁰⁰ and a supply train of 5,000 carts for salt meat loaded into barrels, 500 carts for biscuits, and eleven carts to carry 31 barrels of spirits.¹⁰¹ A barrel of spirits, known in today's terms as a keg, holds 31 U.S. gallons of liquid. One barrel of spirits weighed 160 pounds. Only three barrels could be placed onto carts for the march due to weight

⁹⁷Robertson, 266.

⁹⁸One tractor trailer's (forty foot in length) holding capacity is 48,000 pounds.

⁹⁹Wellington to British Commissary-General, 1 August 1808, *Wellington's Dispatches*, 4:46.

¹⁰⁰Wellington to Hill, 6 June 1812, *Wellington's Dispatches*, 9:215-216.

¹⁰¹Salt meat was packed into barrels that held 100 pounds. Barrels that held spirits would hold 31 gallons of liquid and weigh 160 pounds.

restrictions. One barrel of spirits could supply 82 men for one day. The supply train required, in today's terms, sixteen tractor trailers for movement.¹⁰²

Prior to operations into Spain, resupply was conducted from ports at Lisbon, Coimbra, and Oporto. By this time in the war, the regiments and divisions had ample mule support. The shortage for supplying the army, was in the number of carts available. Commissary General Kennedy had suggested that future operations would be facilitated if the army had their own commissariat wagon train. This would enable independence from the invariably inadequate local wheeled transport and relieve the people living in those areas of having their bullock-carts taken.¹⁰³ Wellington issued an order for construction of 600 carts at Lisbon, Oporto, and Coimbra ports.¹⁰⁴ The new carts would be constructed to hold up to 800 pounds, giving the commissary officer an additional 200 pounds of weight, per every cart used. The significance of the increased weight was fewer carts had to be bought, which meant spending less money, and the commissary officer could haul more provisions to the fight.

Prior to attacking Badajoz, Wellington sent out explicit instructions regarding the attack of Badajoz and the order of battle.¹⁰⁵ The attack began at 10 p.m. on the 6th of April and Badajoz was captured by the morning of the 7th of April 1812.

¹⁰²One tractor trailer's (forty foot in length) holding capacity is 48,000 pounds.

¹⁰³Robertson, 233-234.

¹⁰⁴Memorandum by Wellington, 20 November 1811 (*Dispatches* 5:370); correspondence of Capt. Whittle, Royal Wagon Train, engaged in collecting timber at Rochoso for the new wagons, November-December 1811 (*Commissary-General Kennedy Papers*).

¹⁰⁵Memorandum for the Attack of Badajoz , 6 April 1812, *Wellington's Dispatches*, 9:32.

With both Ciudad Rodrigo and Badajoz captured and the army supply system armed with new and more capable carts, the commissary officers of the regiments and divisions were set to begin the massive hauling of supplies for the offensive. Wellington's army defended until the summer of 1812. They would conduct limited operations and fall back to their cantonment areas in close proximity to depots or magazines. But once on the offensive in Spain, divisions and regiments would have to utilize internal transportation assets to their fullest. Wellington speculated about French intentions in a dispatch to lieutenant General T. Graham, after he captured Badajoz and Ciudad Rodrigo:

I have letters of the 29th and from Salamanca of the 28th. The French cavalry were at Tamamen on the 29th, and intended to move that night. Marmont was at Salamanca on the 28th, but it was expected that he would move on the following day. They have collected about fifteen day's provisions, ladders, and bridge, &c., and I am inclined to believe they will attack Ciudad Rodrigo or Almeida.¹⁰⁶

The commissary officer played the crucial role in the first and second echelons. They were attached to regiments or divisions and were responsible for the supply of that unit. For example, the first echelon, the regimental system, had fourteen mules attached to it. The second echelon, the division mules, had between 400 and 600 mules attached.¹⁰⁷ The difference in cart numbers between regiments and divisions was based on troop assigned strength. The regimental echelon had far fewer troops to support than a division. To illustrate, as of 1 July 1812, the Second Cavalry Divisions had 2,514 men

¹⁰⁶ Wellington to Lieutenant General T. Graham, 1 April 1812, *Wellington's Dispatches*, 9:22.

¹⁰⁷Robertson, *A Commanding Presence*, 265.

assigned.¹⁰⁸ To move the supply trains of the division there had to be enough mules and carts. Second Division had 769 mules but only ten carts.¹⁰⁹ This was not enough assets to move over 14,000 pounds of provisions. This would take 26 carts for provisions alone. The commissary officer would have to locate and pay for the additional sixteen carts needed. They did this by using their local contacts to assist in procuring the carts and muleteers that were needed. Commissary officers, by this time, had forged relationships with the local populace by conducting business with them almost daily.¹¹⁰

When preparing to conduct a resupply operation, the division commissary officers would load their carts with injured soldiers, unused supplies, and various provisions for the march back to the magazines.¹¹¹ Upon reaching a magazine the carts were unloaded, then uploaded with fresh provisions. Travel distance averaged 29 miles one way; which took three days. To illustrate this point, it would take three to four additional days for supplies to reach Badajoz magazine from Lisbon. This is significant as resupply was never fast or reliable due to road conditions and lack of transportation assets. This was another reason why Wellington issued the order that no magazine or depot would be further than twelve leagues in distance from another.

In June 1812, Wellington gave specific information regarding how many provisions would be at located at Badajoz and Elvas:

¹⁰⁸Dr. Mark Gerges, "Command and Control in the Peninsula: The Role of the British Cavalry 1808-1814" (Doctoral Thesis, Florida State University, 2005), 429.

¹⁰⁹Robertson, 58.

¹¹⁰Ibid., 299.

¹¹¹Ibid., 277.

I intended to have in Badajoz a supply of provisions for 3,000 men for 60 days, which I intended should be made over to the commanding officer of the garrison, in case the place should be invested, and I had ordered that 600,000 rations should be in Elvas, in order to provide for the contingency, that I might carry the operations of the campaign to the southward. Mr. Routh will let you know the progress which has been made in both those objects, and you will consider both magazines entirely at your disposal. You will recollect, however, that I believe that at present there are no other provisions in Badajoz, but Elvas is well provided. There would not be much harm done if our magazines at Elvas were reduced to 300,000 rations.¹¹²

Wellington utilized Elvas and Badajoz as a defense from the French. Almeida and Ciudad Rodrigo were the main line of effort for supplying the provisions and equipment for the offensive. At this point, with the provisions for the offense identified and loaded, the siege of the forts outside of Salamanca could get under way. The siege began 15 June 1812 and lasted seven days. During this time daily provisions for the army of 50,000 British, Portuguese, and Spanish troops averaged 200,000 pounds per day. Wellington mentioned the quantity of daily food provisions to Dr. McGrigor in a dispatch:

In respect to the third recommendation, I have to observe that it is impossible in any army of the size of that under my command to take from the men and return them their equipments at every moment when it appears convenient. The demands for food for the army amount to 200,000 lbs. weight daily, which must be brought from the sea, besides ammunition, supplies for hospitals equipment's of all descriptions, &c. &c.¹¹³

To accommodate the daily movement of 200,000 pounds per day the commissary officer for the regiments would have to prepare over 250 carts of supplies. The coordination and synchronization required over 500 bullocks or 300 mules for transport. Considering the distances traveled, 57 miles from Ciudad Rodrigo to Salamanca, there were supply trains on the routes day and night. This posed a few problems; first, there

¹¹²Wellington to Hill, 6 June 1812, *Wellington's Dispatches*, 9:215-216.

¹¹³Wellington to Dr. McGrigor. 9 June 1812, *Wellington's Dispatches*, 9:221.

would have to be, for seven days of operations, 1,750 mules or 3,500 bullocks available to move the supply trains. Acquiring the assets involved was a daunting task, but the commissary officers, by this time, had made contacts through prior business dealings with locals which made the procurement of animals for movement easier than in 1809.¹¹⁴

The large magazines in the rear, at Ciudad Rodrigo and Almeda, would bear the bulk of the resupply operation. Spain's countryside offered much more forage for animals, which meant the mules could carry less daily food requirements for both themselves and the horses. This allowed the mules to carry additional provisions and supplies for the infantry regiments.¹¹⁵

As preparations began, Commissary Officer John Edgecombe Daniel, provided a detailed summary of the number of horses and mules assembled for the offensive:

Seven infantry divisions required 4,000 mules; and the ten cavalry regiments and the Horse-artillery, with 5,000 horses, required almost 3,000 mules. In addition there were mules transporting ammunition (about 800), and those appropriated to the conveyance of entrenching tools, regimental books, medicine forges, ect . . . in total scarcely less than 10,000 public mules were perpetually following the army, besides the crowd of baggage animals belonging to officers . . . , say 2,000; and this did not include those of Hill's Corps, which was followed by a train which could not fall short of 3,000 animals. Thus the total number of mules accompanying the advance was in the region of 15,000, apart from the cavalry, mounts for staff, draughts animals and immense herds of cattle ~~on~~ the hoof.¹¹⁶

To illustrate what these numbers meant consider the total pounds 15,000 mules could carry, and 800 pounds per cart or 12,000,000 pounds of provisions. The entire offensive required 15,000 carts for movement. That is 250 tractor trailers or 200 rail cars

¹¹⁴Robertson, 299.

¹¹⁵Ibid., 268.

¹¹⁶John Edgecombe Daniel, *Journal of an Officer in the Commissary Department 1811-1815* (Cambridge: Ken Trotman; 1997), 269.

in today's terms. The overwhelming amount of supplies required for pre-positioning put an immense strain on transportation assets that were not readily available to begin with. Carts and mules would have to be utilized for multiple trips, which caused great distress to the animals to the point that some died while providing their service. These challenges, coupled with the extension of the lines of communication, presented enormous challenges for the commissary officers and their assistants.

The main north/south route from Spain into Portugal, which ran from Ciudad Rodrigo to Lisbon, extended 239 miles. Eventually this route was extended further once Wellington's forces captured Salamanca. To give a better depiction of the distance traveled and time it took, supply trains would have to travel 222 miles from Lisbon to Almeida. This distance would take the average supply train approximately 55 to 60 days, based on four miles traveled per day.¹¹⁷ The time and distance was shortened by 30 days due to the river transport system in place from Lisbon to Albrantes. If each magazine had an average of ten days' supply for 10,000 men it meant that transport of supplies would be accomplished magazine to magazine, until supplies reached the soldiers at the front. At any time there could easily be over 340 mules or bullock oxen pulling 340 carts daily moving north from Lisbon. This is approximately the same amount, in short tons, that five tractor trailers could haul. In addition, the supply trains already on the routes, either moving north or returning south to Lisbon, would further congest the lines of communication. Imagine a supply train moving north, approximately one to two miles in length, and another supply train moving south, again one to two miles in length, passing each other enroute. This made for congestion that would often slow supply trains down to

¹¹⁷Reid, 105.

the point that many of them pulled off the road to wait for the other to pass. This exasperated the situation as it further delayed delivery of supplies to depot and magazines.

Looking at supply in terms of one day and how the supply system actually worked, a good example would be the First Cavalry Division. On 1 July 1812, they had 3,021 men assigned. For the infantry conducting the siege, Wellington made it clear what each soldier would carry into the siege, –The troops are to have with them a day's provisions cooked, and they are to be followed by two days spirits, and no other baggage.”¹¹⁸ The spirits would require a total of thirteen carts and mules to transport to the siege. With the majority of the divisions carts used to transport the artillery, the commissary officer would requisition for additional carts and mules if needed or they would wait for the siege train to return to the magazine once it delivered the artillery to the front. Wellington continues to instruct how he wanted the ammunition transported and employed:

The musket and rifle ammunition attached to the Light division is to be taken to the ground the first day, and remain there. The 9 pounders attached to the 4th division will likewise be taken to the ground on the first day, and remain there. The artillerymen are to be relieved daily, by those belonging to the brigades and troops attached to the 1st, 4th, and Light divisions.¹¹⁹

What did this consist of? First, to transport the required subsistence, the division soldiers carried their one day of supply on them. The ammunition, or siege train, was broken down by shot, shell, powder, and other miscellaneous items as part of the

¹¹⁸Wellington to Commanding Generals of the Divisions, *Wellington's Dispatches*, 8 January 1812, 8:537-38.

¹¹⁹Ibid.

ammunition package. In a communication to his ordnance officer, Major Dickson, Wellington asked about the carts he had arranged to move the ammunition train to the area of operations, “Have you heard anything of 100 carts purchased by Mr. Boyes, drawn by the public bullocks? They were to be loaded with shot at Villa da Ponte, and to come on from thence.”¹²⁰ One hundred carts pulled by bullocks, two per cart, traveling from Villa da Ponte to Ciudad Rodrigo took almost 35 days. Wellington had instructed Mr. Boyes, commissary officer, to provide the carts and bullocks one month previously to the date of his inquiry to Major Dickson. The carts carrying the spirits would arrive two days after the siege had commenced. The remainder of the resupplies would reach the magazine at Ciudad Rodrigo by throughput from the Almeida magazine. Overall, more than 600 mules and carts were used to pre-position supplies and artillery for the siege.

For a different perspective it is important to look at the supply system in terms of days. In this case, over a 30 day period how were supplies moved from the ports to their final destination? First, supplies were brought to the ports in Lisbon, Coimbra, and Oporto. From there, commissariat wagon trains or bullock-carts marched to their respective depot or magazine. From Lisbon to the depot at Abrantes, supplies would be transported by boat on the Tagus River. This was faster, plus boats carried more than carts. From Abrantes, the supplies were loaded onto carts for the Portalegre depot; a distance of 56 miles. From here, carts were transferred for the remainder of the journey to the magazine at Almeida. This covered a total distance of approximately 222 miles, which took approximately 45 to 50 days of total travel time. This does not include the

¹²⁰Wellington to Major Dickson, British R.A., *Wellington's Dispatches*, 8 January 1812, 8:537.

road congestion which caused traffic jams and sometimes a complete halt. Also, when the weather turned bad the roads became too muddy to sustain a three mile an hour clip. To summarize, the entire movement of supply trains would take anywhere from 40 to 45 days, from Lisbon to Almeida, to finish one leg of their journey. Then supplies would have to make the final leg to Ciudad Rodrigo, another 29 miles or 7 days. The offensive into Spain added another week to the 45 to 50 day journey.

Once the siege of the forts covering Salamanca began, the lines of communication were extended another one to two days for resupply. This is why it was so important to capture Ciudad Rodrigo and Badajoz. The two cities covered the north and south entrance into Portugal, but more importantly provided Wellington the means to pre-position supplies and offered a quick avenue to fall back if needed.

The immense task of moving supplies from the ports to respective magazines was in the hands of the commissary officers. In all, over 20,000 mules and carts hauled over 12,000,000 pounds of provisions into position for the offensive. This required considerable planning, patience, and ingenuity that the commissariat department accomplished with high marks. Wellington would later state that if it were not for the regular subsistence provided by the commissariat department, the number of losses for the duration of the Peninsula War would have been greater than it was, 36,000 men.¹²¹

Wellington had the foresight to prepare in advance for offensive operations. By doing so he ensured the success of the supply system. While the lines were increased, supplies were available, due to pre-positioning, which allowed much needed time for resupply trains to reach the magazines now in Spain. Plus, constructing carts that would

¹²¹Robertson, 426.

carry larger loads and were more reliable enabled a commissary officer to move more supplies with fewer assets, saved time and money, spent less time transporting supplies, and it cut down on time procuring assets. The success at Ciudad Rodrigo, Badajoz, and eventually Salamanca were in great part due to the supply system's flexibility, responsiveness, and resource implementation, supplies being pre-positioned, and its overall ability to adapt to the changing environment.

CHAPTER 5

THE CONCLUSION: THE DUKE OF WELLINGTON AND THE SUPPLY SYSTEM DURING THE PENINSULA WAR

The supply system during the Peninsula War was initially to support the defense of the country. The use of geography and well positioned depots and magazines ensured the army was supplied. Integrating the Lines of Torres Verdes with the overall defense plan for Portugal allowed the Peninsula Army to buy time for space and ensured the defense of Portugal would prevail. Wellington realized the French had too large a force to live off the land and his intent was to stretch the lines of communication, to slow the resupply of French forces. This vision enabled Wellington's army to maintain cantonments and interdict the French when the advantage was theirs. Falling back to depots and magazines after contact with the French, ultimately stressed the French army. Their lines of communication, assisted with providing the Peninsula Army the opportunity to go on the offensive in 1812. It bought Wellington the space and time he needed.

Wellington entered the Peninsula War with a commissariat that was vastly inexperienced and ineffectual. He left it with a system capable of meeting his operational needs. The Peninsula War was the first time that the British commissariat had to handle the entire supply and transport by itself. Animals could be hired but this still left a considerable amount for the regiments to do. Being without formalized training, the

commissariat personnel had to —learn under the tuition of Wellington and the discipline of experience.”¹²²

When examining the logistical system of Wellington’s army, there are two elements which required his direct attention: First, the transportation system, specifically by land, was a challenge that was not easily overcome. The lines of communication were inadequate for his artillery trains to travel on most of the time, they were not of direct distance to the towns and villages, they were not paved, and during the winter months they were often impassable. Second, the payment challenges, specifically the lack of specie caused great difficulty for Wellington during the war. When there were issues with adequate amount of supplies, it was generally not from lack of supplies but a lack of money. The prevailing thought seems to be a lack of the means to finance the war, which Wellington refers to throughout the campaign. The financial crisis even had its effects on the strategic situation. In 1809, a supply shortage halted operations. The issue was a lack of specie to pay for supplies. On 5 May, Wellington protested to the Secretary of the Treasury, William Huskisson, that he had only received a quarter of the 400,000 pounds due to meet the cost of the war. The situation became desperate, and on 30 May, Wellington demanded 300,000 pounds immediately. He reiterated his plea to Lord Castlereagh the next day. Wellington was furious that delays were causing significant effects to his operational plans. He could not advance until he had paid the army debts in the area,¹²³ however, by halting his advance it inadvertently saved his army.

¹²²Russell F. Wiegley, *The Age of Battles* (Bloomington IN: Indiana University Press, 1991), 438-439.

¹²³Lawrence James, *The Iron Duke* (London: Weidenfeld and Nicolson Limited, 1992), 133.

As for transport, it would seem that if proper specie were available the procurement of mules and muleteers may have been less of an obstacle to overcome. Commissary General Kennedy's suggestion to construct 600 larger and more durable carts seemed to alleviate some of this stress. Having the means of transportation specifically attached to the regiments and division was not unusual; however, having the right type and correct construction is what made the act so important. By 1811 the regiments and divisions had enough mules and bullocks to provide the work force for pulling the carts; it was the lack of carts that stressed the supply system.

How did the supply system change during the Peninsula War? First, Wellington sought a network of magazines across Portugal that would serve as a supply base and a point from which mule trains could regularly deliver food and fodder, to various points on the battlefield. In 1809, there were twelve magazines operating. By the end of 1812, there were 37.¹²⁴ Understanding his environment and his enemy enabled Wellington to visualize the defense of Portugal in 1809. Defending, utilizing cantonment camps close to depots and magazines, and understanding that the French could not support a large army with long lines of communication, were ultimate keys to success while in Portugal.

In 1812 the French invaded Russia which gave Wellington the initiative to go on the offensive. He recognized there would be fewer French troops fighting in Spain, thus better matching his army's numbers. He had the army prepare for the offensive into Spain by stocking supplies in pre-positioned magazines, more conducive to resupplying the army once they entered Spain. This ensured their momentum was maintained and the army would sustain the initiative as they invested Ciudad Rodrigo and Badajoz. The

¹²⁴James, 183-184.

change in strategy dictated that the supply system change. It changed by constructing larger, more durable carts, utilizing pre-positioned supplies, and increasing the security of the logistic system. Wellington's army was based on the sea and rivers, his depots were established so that they could be replenished by ships and boats, and were within easy reach of the troops.¹²⁵

A second impact was Wellington's foresight and utilization of the Royal Navy. The Peninsula army capitalized on the advantages that the Royal Navy and sea based logistics provided. This was an asset the French did not have. Wellington won the war of attrition through the "superior exploitation of available logistical resources" as opposed to military strategy.¹²⁶

The French system of supply worked very well in wealthier, more abundant areas. The Peninsula was not conducive to that type of warfare. The French let their logistics dictate their strategy and were forced to pay a high price for that lapse. Wellington, making his logistics fit his strategy, was able to capitalize on the French mistakes. The two effects that eventually enabled Wellington's army to prevail are important for any commander to understand. They illustrate the importance of knowing your environment, understanding your enemy and his weakness, recognizing the limits of your supply chain, and how to dictate your strategy to support your logistics. Wellington did this and it is a tribute to his organizational abilities that he was able to consistently defeat an army of such superior numbers.

¹²⁵Weigley, 485.

¹²⁶Ibid., 500.

ILLUSTRATIONS



Northern and Southern invasion routes into Portugal.

Source: Infoplease.com, "Atlas," <http://www.infoplease.com/atlas/country/portugal.html> (accessed 4 May 2011).

APPENDIX A

CHART OF REVENUE OF THE TREASURY OF PORTUGAL, 1809

Chart of the revenue of the Treasury of Portugal, in which an approximation or estimate is made, according to the current circumstances, of the net annual product of each item," appendix to the official report of the governors of the realm nr. 25 of October 23, 1809.

All revenues are in *Reis*.

Ordinary <i>décima</i> tax of the whole realm	600
<i>Alfândega grande de Lisboa</i> (Lisbon customs)	400
<i>Consulado da Alfândega grande de Lisboa</i> (Customs duties)	80
<i>Casa da Índia</i> (India House)	250
<i>Consulado da Casa da Índia</i> (tax for the defense of the ports and against piracy)	60
<i>Consulado de saída</i> (export tax)	100
Estates	20
Tolls	12
Meat and new tax	140
Olive oils and new tax	25
Fruit	25
Wines and new tax	300
<i>Mesa do Sal</i> (salt tax)	30
Transfer tax on fresh and dried fish	60
<i>Paço da Madeira e seu consulado</i> (transfer tax on timber)	40
Tobacco import duties	100
Customs of the provinces of the realm	300
Mint (own income)	60
Crown property	20
Transfer taxes of the realm	240
<i>Real de água</i> (food consumption tax)	50
<i>Casa de Bragança</i> (House of Bragança)	100
Chancellery dues and seals	80
Tobacco contract	1080
Soap contract	30
Ivory and 1% of gold	30
Donation of 4%	250
Vacant benefices of Military Orders	80
<i>Subsídio literário</i> (Education tax) of Lisbon and provinces	50
Rents of the Queen's House and Estate	30
<i>Ano do morto</i>	20
Confiscated property	6

Remainder from the water tax	50
Remainder from the public grain market	50
Remainder from the <i>Bula da Cruzada</i>	40
Remainder from the <i>Malta</i>	10
Contract fees	10
<i>Tabola Real de Setúbal</i> (Royal Court)	12
Exchequers of the realm	20
Prebend of Coimbra	30
Brazilwood contract	40
Remainder from the bounties fund	20
<i>Julgadas [sic] de Santarém</i> (Local land tax)	16
Playing cards	6
<i>Casa do Pedroso</i>	4
Sundry income	36
	24
<i>Meias anatas</i> (tax on officers and privileged people)	6
Defense tax	1600
New taxes established by the <i>Junta do Porto</i>	100
Donations offered for the defense of the realm	40
TOTAL:	6758

Cost to Portugal during the period of the Peninsula War: 1808–1811
e-JPH, Vol. 6, number 2, Winter 2008.

APPENDIX B

MEMORANDUM OF AN ARRANGEMENT FOR THE PORTUGUESE COMMISSARIAT

- 1, The Portuguese Commissariat, whether superintended by a British Deputy Commissary, or by a Portuguese Commissary, must be solely and exclusively under the direction of the Portuguese Government, and the Commander in Chief of the Portuguese army.
2. When the British and Portuguese armies shall be joined, or when the troops of the one nation shall pass through the cantonments occupied by the other, the Commissary General of the Portuguese army will communicate with the Commissary General of the British army, respecting the proportion of the supplies of the country to be allotted for the Portuguese Commissariat, and the quarters from whence to be drawn. The arrangements upon these occasions must necessarily be made by the Commissary General of the British Army.
3. The requisitions upon the country for mules, horses, carriages, and boats, are to be regulated in the same manner.
4. When the detachment of the troops of the one nation shall act with the army of the other, the Commissaries are to pay for the rations they will receive at the following rates; That is to say, the Portuguese Commissary General for every ration issued to the Portuguese troops, and the British Commissary General for every ration issued to the British troops, one shilling. Rations to horses and mules to be paid for each at the rate of two shillings,
5. When the British Commissary General shall receive magazines or supplies of any description from the Portuguese Commissariat, he is to pay the Portuguese Commissary for them, at the rate at which the same description of supplies can be purchased in the country at the same time.
6. All magazines and supplies of every description, given by the British Commissary General to the Portuguese Commissariat, are to be delivered under the orders of the British Commander in Chief; and the receipt of the Ambassador must be taken for them, and his bill upon the Lords of the Treasury for the amount of the value. The value to be settled according to the price of the same articles in the country at the time.¹²⁷

¹²⁷*Wellington's Supplemental Dispatches*, 10 June 1809, 4:257-58.

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